Engaging and supporting Problem Solving Online
Dr David Jonassen

The limitations in online development platforms restrain the nature of the instruction that can be developed and delivered using those platforms. Popular platforms do not support alternative forms of knowledge representation by learners, authentic forms of assessment, or the use of distributed tools to scaffold different forms of reasoning. Because these platforms replicate face-to-face instruction, they rarely support any form of problem solving, which is the most authentic form of learning in everyday and professional contexts. In this presentation, I describe and illustrate different kinds of problem solving that can and should be supported in online learning in order to prepare learners for life. In order to achieve scalability, I describe the design of architectures for developing learning environments for solving different kinds of problems.
Concurrent session 1

Presentation Time: Tuesday 11.00-12.00 (Hall E)  Strand: The Future (Invited Speaker)

National Initiatives regarding ICT in Education
Martyn Forrest

Presentation Time: Tuesday 11.00-11.30 (Room 1)  Strand: ICT in learning areas (Refereed paper)

Primary school teachers’ use of Internet resources: Multiple cases on using the Internet for teaching
Chris Campbell
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The teaching of technology in primary schools is being increasingly promoted while many teachers are struggling with integrating teaching technology skills with their class teaching and learning programs. The New South Wales Department of Education and Training expects all Year 6 students to undergo a computer skills test. This is creating increased pressure on classroom teachers to teach more technology but this is not necessarily occurring. This paper describes the preliminary stages of a study which uses case study methodolgy and aims to provide an in depth view of how some teachers are successfully integrating the use of the Internet and Internet resources into their teaching and learning activities. Data for this study will be collected from six schools and will focus on students in Years 5 and 6 as well as their class teachers.

Presentation Time: Tuesday 11.00-12.00 (Room 3)  Strand: ICT in learning areas (Non-refereed paper)

Creating narratives using ICT, and in particular sound and visuals to bring to life the written word
Ann Langman, Diana Busolin  and 6/7 Students at Grange
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Using the frameworks of First Steps methodology, students created powerful narratives that can be interpreted through sound and visuals. They worked with the music specialist to investigate the way sound can heighten the power of narratives so that the audience is touched, moved and inspired. Using a variety of software e.g., Power Point and i-Movie they added another dimension to their narratives. Habits of Mind and high order thinking skills became the umbrella from which all learning was constructed. Students will share the process and the results of their learning in this presentation.

Presentation Time: Tuesday 11.00-11.30 (Room 4)  Strand: Thinking skills (Refereed paper)

Using Lego as a tool to develop science and mathematics understandings prior to robotics study.
Stephen Norton
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An emerging trend in education is to attempt to teach mathematics and science within integrated and authentic contexts. Few pedagogical models, however, exist to guide the practice, and little research has been undertaken on the effectiveness of these approaches to enhance students’ achievements on specific mathematics and science outcomes. This study used Lego simple and powered machines as stimuli material for the teaching of science and mathematics concepts to Year 7 students. It was found that while some students made significant improvement on pencil and paper tests, others had more limited gains. Some students demonstrated sophisticated understandings of ratio concepts. The findings have implications for how teachers plan and implement the use of technology practice as a means to enhance learning in science and mathematics.
Improving ICT curriculum integration: informing the links between pre-service teacher education and the continuing professional development of teachers

Glenn Finger and Nigel Baker
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While there is no shortage of policy documents encouraging effective ICT integration, student teacher stories and discussions about their practicum experiences are characterised by reports of their observing little or no effective ICT integration. This tends to lead student teachers to ask questions such as: How competent and confident in ICT skills are pre-service teacher education students? What challenges face recent graduates in terms of integrating ICTs in their classroom programs? What can we learn from recent graduates who are considered to be effective and innovative users of ICTs in their schools?

This paper summarises the findings of a research study which investigated the ICT skills, competencies and attitudes of teacher education students in a Bachelor of Education (Primary) program. In addition, case studies were undertaken of teachers who were recent graduates, had attended the Burleigh Heads Learning and Development Centre – Information and Communication Technologies (LDC-ICT) practicum, and were identified as successfully integrating ICTs. Consequently, elements of their pre-service teacher education program and subsequent professional development that have contributed to their effectiveness are identified to inform the critically important links between the transitions from pre-service teacher education to the early years of teaching.

Exploration of better practices in online teaching and learning via an online Delphi

Martha Gabriel
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This research study reports the results of two online Delphi processes involving groups of online instructors and graduate students in two universities in Canada. The process was developed to facilitate the engagement of experienced instructors and learners with issues surrounding education in online environments. The online Delphi method provided an innovative means of data collection and analysis in the study. The results of the initial Delphi guided the development of the discussion in the second iteration of the Delphi process. Each Delphi process included two panels; one panel was composed of online instructors, while a second panel comprised experienced online learners. The results of both Delphi studies were analysed, and provided the basis of a handbook of better practices in online teaching and learning. Particular themes which emerged from the Delphi and are discussed in this paper include online learning communities, course design considerations, and requirements for support for both instructors and learners.
Who are you callin’ digitally challenged: The 2004 Australian Secondary Schools Digital Design Challenge

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2004 is the sixth Year that the Australian (formerly Queensland) Secondary Schools Digital Design Challenge has been conducted. Secondary schools throughout Australia are invited to participate in an activity that encourages and rewards students in the creation, fostering, and promotion of new and original ways of thinking that challenge the conventional. This paper will look at many aspects of the competition, in order to give guidance and direction to educators, including the viewing of the past award winners, this years National winning designs, the design briefs given, design professionals feedback on these designs, and the analyses of data gathered from six years of participating schools, students and judges. This presentation includes the: (i) Effective design techniques and processes used by the students; (ii) transitional changes of teaching techniques and graphics software over the past 6 years, and why teachers have migrated to these teaching approaches and specific software programs; (iii) analyses by the design professionals who judge the competition on how design teaching processes can be improved for students to become more effective at conceptualising and ideation using digital technology as a tool; (iv) analyses of the ongoing benefits and outcomes of the competition; giving equal opportunity, recognition, encouragement, networking, and rewarding students, educators and schools; and (v) seven stages of design learning.

Optimising the use of available technology in educational research

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This poster outlines the methodological challenges posed by contemporary classroom research and the new techniques of data collection developed to address these challenges. Most importantly, the role of available advanced technology is specifically discussed with regard to data collection, data storage and data analysis. Examples are provided of the types of complex data sets made possible by the new technologies, of the means by which such data is configured and stored in a form accessible to analysis, and of recently developed software customised to support the analysis of complex video-based data. In each case, the theoretical and methodological entailments of the new supporting technology are discussed.
Concurrent session 2

**Using the Internet in the primary classroom**

Judy Beal  
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This paper explores the integration of useful websites and online tools to enhance teaching and learning in the classroom. In order to embed ICT across a range of curriculum areas purposefully, the use of the Internet is necessary and effective. Ideas will be shared that encourage successful teacher pre-searching in order to facilitate more effective student re-searching and exploration. Streamlining student access to the Internet using a picture-based web page will be explored. It is important that we realise the positive potential of the Internet in the classroom and by sharing our ‘best sites’ we too become better learners and engagers with technology.

**Don’t get lost in the technology**

Phil Dilger  
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How can teachers plan, deliver, assess and report with confidence that the outcomes will be meaningful and that they won’t get lost in the technology? The Tasmanian Learning Architecture Project will be drawn on to illustrate how good technical architecture can support teachers to plan learning activities, reporting against learning outcomes and intuitively developing skills in the use of online tools. This case study will focus on issues and concerns to teachers.

**ICT curriculum integration: Research directions for measuring outcomes**

Glenice Watson, Romina Proctor and Glenn Finger  
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This paper reports on one aspect of a research project to develop an instrument to measure ICT curriculum integration. It refers to other papers by the authors that provide details of the development process and statistical validation of the instrument. It draws attention to theoretical and practical issues that need to be addressed in the design and implementation of such an instrument. The paper also considers recent research that illuminates methodologies supportive of recording and measuring ICT curriculum integration and student attainment. It recommends that future research directions should involve parallel quantitative and qualitative methodologies that illuminate the details of the learning experience taking place and are founded in an understanding of the transformational possibilities enabled by ICT use.

**‘Inside the Musical Loop’ – Strategies and activities for improving musical content for multi-media projects**

Antony Hubmayer  
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This paper explores the important role that sound plays in creating mood and context. Sound can support, enhance, contradict and even confuse a visual or text message. When sound is combined into musical phrases including, rhythm, pitch, expression and texture a more precise and specific message can support the content. Student multimedia and film based projects will be enhanced through the inclusion of ‘expressive’ musical devices that can be as simple or complex as time permits.
Webhiker’s guide to online literature and literacy
Pat Pledger
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Come to this presentation to find out about the power of connection - to each other, to inspiration, to debate, to ideas, concepts and best practices in online literature and literacy communities. Discover online reading groups, fantasy discussion lists, fiction lists and literacy forums. Touch the minds of other brilliant teachers in online communities.
Concurrent session 3

Presentation Time: Tuesday 12.00-12.30 (Hall E)  Strand: Leadership and Change (Refereed paper)
A framework for implementation of ICT in schools
Sue Trinidad, Barney Clarkson and Paul Newhouse
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This paper reports on research carried out in Western Australia to develop a framework to support, describe and promote good practice in the use of ICT in learning and teaching in schools. The framework is multi-faceted and flexible enough to be used by individuals, groups, schools or educational organizations. It is modelled on the concept of the curriculum framework, with the layers allowing various levels of investment in the processes of the teacher using ICT in teaching and learning.

Presentation Time: Tuesday 12.00-12.30 (Room 1)  Strand: ICT in learning areas (Non-Refereed paper)
SMART Board - ideas to share
Samantha Smith and Dianne Fathers
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The focus of this paper will be the sharing of Ngunnawal Primary’s lessons and experiences using SMART Boards. A typical SMART Board setup consists of a touch sensitive whiteboard connected to a projector and computer. A user can then run any computer application (e.g., CD ROMs, DVDs, the internet and other educational software), interacting with those applications using your finger instead of a mouse. This paper will report on a number of strategies that have been employed across a variety of curriculum areas including English, Mathematics, Science and Social Studies. Further, this paper will report on activities that are appropriate from Kindergarten to Year 6, and given the flexible nature of the technology include small group, whole class, teacher directed and student directed learning activities.

Presentation Time: Tuesday 12.00-12.30 (Room 3)  Strand: ICT in learning areas (Non-Refereed paper)
Engaging generation next
Steve O’Connor
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Students are more engaged if they are actively involved in the creation and development of real projects. See and hear how young people are creating and using online technologies. This paper will discuss a number of these projects by providing examples of students work in a range of projects through the Technology School of the Future including the Animation Academy, RoboCUP Junior, Industry Collaborative projects and the Remote Sensor Project.

Presentation Time: Tuesday 12.00-12.30 (Room 4)  Strand: Leadership and Change (Non-Refereed paper)
Strategic stretching of the professional development dollar
Wendy Legge
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The South Australian Professional Learning in ICT project has a highly successful ICT Coach program designed around principles of effective professional development detailed in a national research project. This part of the project targets 40% of teachers already focussed on using ICT in teaching and learning with 45% of its funds. This paper will outline the thinking behind the strategies of the project and the links they make to where schools and teachers in South Australia are already positioned.
University students' attitudes toward online learning

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In recent years, as new teaching and learning processes appear in universities, online learning has brought great changes to higher education. Online learning is a learning process supported by computer technology and a web-based environment. Many studies have been carried out about the influence of the factors, such as gender difference, previous experience and social economic, on university students' attitudes toward computer use; however, there isn't enough research about the relationship between these factors and university students' attitudes toward online learning. As students might hold different opinions about online courses, which would lead to different performance, it's very important for educators to get a clear understanding of university students' attitudes toward online learning. The aim of this study is to investigate university students' attitudes about online learning. The relationships between the factors, such as gender difference, experience of computer and the Internet use, social economic situation and online learning attitudes of 30 students at the University of South Australia are discussed.

Literacy and Clay Animation in a primary setting

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This paper outlines a research project that focussed on the impact of Clay Animation on teaching and learning in a primary setting. The students who were part of the research, were nominated by class teachers because of their difficulties with literacy, low self-esteem and/or difficulties working in a group setting. These students were withdrawn from their normal classes to learn the process, create their own animations and then to act as coaches for others. The findings indicate that Clay Animation as a teaching and learning tool is an exciting, time-consuming, challenging, motivational process and above all, a lot of fun. It can impact in a positive way on learning, group skills and teamwork, self-esteem, confidence and leadership skills.

Improving bulletin board use in face-to-face classes

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During fall and spring semesters 2003-2004, 134 students, enrolled in seven small humanities and communication classes at Embry-Riddle Aeronautical University (ERAU), Daytona Beach, FL, were surveyed about the number of times they used the online bulletin board, their likes and dislikes regarding bulletin board use in a face-to-face course, and their suggestions (for teachers and students) to improve online discussions. All teachers selected to distribute the questionnaire required students to post and read messages throughout the semester, although not every week. This initial survey showed that students perceive participation in the online community as the most positive factor. The greatest number of negative comments concerned the amount of time needed to read and respond to messages. However, the positive comments outnumbered the complaints. Suggestions for teachers indicate the need to modify their teaching methods to ensure that bulletin board assignments are clearly defined and expectations for discussions outlined. bulletin board discussions more tightly to in-class discussion topics and assignments, and make bulletin board use “more fun.” The questionnaires will be distributed again in 2004-2005, with the objective of creating an ongoing evaluation process of the ways bulletin boards are used in face-to-face classes.
Enhancing the computer skills of undergraduate and elementary students

Pam Boger and Dennis Boger
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The poster will depict a project with the goal of exposing both elementary and undergraduate students to Microsoft Office while conducting original research. Under the guidance of their university mentors, students in grades four and five recorded and graphed their data using Microsoft Excel. Microsoft Word was used to type summaries of their conclusions. Finally, they presented their research using Microsoft PowerPoint presentations at a Numeracy Conference.
Concurrent session 4

Presentation Time: Tuesday 1.30-2.30 (Hall E)   Strand: Innovative pedagogical practices (Invited Speaker)
POWER in the palm of their hands: The power of handheld computing as a tool to transform teaching and learning
Kathy Schrock
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In the past two decades, pilot programs for infusion of technology into the classroom setting first took the form of small pods of student-shared desktop computers. During the last five years, the model has been modified to provide a one-computer to one-student model (1-to-1) utilizing laptop computers, and, in the past three years, has been expanded to incorporate the wireless protocols for extending the reach of networks and the Internet to all students with a laptop. As technology has advanced, and as the wide range of choices for handheld computer hardware and software has grown, the next tool to significantly impact the teaching and learning process will be the handheld computer. With a lower price, to allow for increased acquisition, and thousands of subject-specific programs to support the instructional process, the handheld will herald the large-scale growth of ubiquitous computing devices in schools. Recent research studies illustrate the benefits of the use of handheld computers in the classroom. This presentation will include ideas on how creative classroom teachers can utilize the available no- or low-cost software to meet both students' instructional needs and their own personal and professional requirements.

Presentation Time: Tuesday 1.30-2.00 (Room 1)   Strand: Innovative pedagogical practices (Non-Refereed paper)
Creating a movie festival: A cross between Trop Fest and a night at the Oscars
Trudy Sweeney
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Creating a movie festival is a great way to motivate students' learning in a meaningful and fun way. Integrating movie making into the curriculum requires students to develop skills across all seven National Key Competencies and improve their literacy skills. Movie making is an ideal method of fostering student initiated curriculum and students' ownership of their learning. This paper describes an approach to making multiple movies with a singular purpose. The first part of this approach focuses on the creation of short movies by small groups of students. The second part of the approach concentrates on the presentation and celebration of the movies that have been made.

Presentation Time: Tuesday 1.30-2.00 (Room 3)   Strand: ICT in learning areas (Non-Refereed paper)
The AlphaSmart 3000 NoteTaker in the classroom
Pete Dailhou
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This session will look at the features of the AlphaSmart 3000 Notetaker in Special Education, the primary writing classroom and the English classroom in High School. Models and strategies for their use will be presented.
Developing and implementing “Getsmart” in a blended learning environment

Vinesh Chandra
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In some classrooms, teaching methods have evolved little over the years. Enrolments in subjects like science have progressively declined and the persistent use of outdated teaching methods has often been associated with this. In less than a decade, the Internet has emerged as a potential tool to vary classroom routines. Its use in high school science classrooms is still in its infancy. In this study Getsmart, a website was developed and implemented in junior science and senior classrooms in a blended learning environment in a Queensland State School. Students accessed this resource periodically at school and also from their homes. Quantitative data collected by using the Web-based Learning Environment Instrument (WEBLEI) suggested that students had positive perceptions of such an environment. This result was substantiated by qualitative data gathered through student surveys.

The role of synchronous interactions in e-Learning environments

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Early generations of online courses were almost exclusively asynchronous. This was partly due to the fact that technologies for dynamic synchronous interaction didn’t exist, and the fully flexible anytime anywhere nature of asynchronous study was rightly seen as one of the great advantages of online learning. Widespread failure of this model of online learning led to a re-examination of computer-mediated distance learning courses. Blended models of delivery evolved, and the term e-learning was coined to encompass on and off campus delivery modes. It is now recognised that online courses should afford opportunity for socialization, ideally incorporate collaborative tasks, and that a sense of community or group identity be encouraged. This produces a tension between the anytime anywhere flexibility of online learning, and the fact that most online students require a sense of group identity. This sense of group identity is better, more quickly, and more powerfully formed through synchronous interactions and even more so if interactions are voice based. This presentation will report on a recent survey exploring the attitudes towards synchronous interactions in online courses. It will offer practical suggestions for resolving the tension between asynchronous and synchronous approaches, and model the potential impact of synchronous events by inviting remote guest speakers to address conference delegates via web-based audio conferencing tools.

Constructing a virtual classroom

Lorraine Wiseman and Jackie Slaviero
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Following the successful pilot of an exciting new project in e-learning with Year 6 students at Eastwood Public School in NSW, a virtual classroom is gradually being introduced in schools throughout Australia. The classroom uses rich, interactive, online resources to bring real-time teaching and learning to primary and secondary school parents, teachers and students. Initially piloted with the Healthstar Editorial Team as well as students and teachers in Dallwallinu, WA, this highly interactive software application, Centra Symposium, enables students and teachers to communicate in real time online. Participants at the presentation of this paper will examine the use of audio, video, whiteboard, PowerPoint, surveys, breakout rooms and web safaris to construct a Virtual Classroom.
E-learning, metacognition and the Australian Science and Mathematics School
Eddie Fabijan
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The Australian Science and Mathematics School is about developing smarter ways to achieve optimal learning outcomes. ICTs in education should become seamless tools to the fabric of education. CaptureCam Pro is one such tool that allows students to achieve competent use quickly and thus focus on the metacognitive activity at hand. This workshop outlines ways in which CaptureCam Pro can be used to promote powerful learning in a range of situations.

Windows Movie Maker - the easiest way to create rich multimedia content in the classroom
Greg Gebhart
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This workshop will introduce participants to Windows Movie Maker 2, which is free with Microsoft Windows XP. Movie Maker is an easy to use video-editing program suitable for primary and secondary students. Create professional multimedia productions incorporating digital photos, movie clips, sound files and special effects. Moviemaker has a range of high-level functions, however it is its ease of use that is so appealing.

In this session, participants will cover how to import images and movie clips, add multiple sound tracks, create television transitions and publish the production as a windows media file. A range of completed student projects will be demonstrated to provide participants with a wealth of ideas for its use in the classroom. These include music video productions, promotional video clips, image storyboards and much more.
Concurrent session 5

Presentation Time: Tuesday 2.00 – 2.30 (Room 1)  Strand: ICT in learning areas (Refereed paper)
Multimedia design and performance in a higher-order thinking task
Lee Campbell
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The infusion of information and communications technology (ICT) into the curriculum is gaining momentum in many educational systems, however, the debate about ICT effectiveness continues. This study examines how the development of higher-order thinking skills was incorporated in the design of a learning object on water conservation. The present project examines the effects of the learning object on higher-order thinking skills in boys and girls. Year 4/5 students were given a knowledge test before and after they completed the learning object. Their answers were subsequently scored according to Biggs’ Structure of the Observed Learning Outcomes (SOLO) Taxonomy. The paper presents the results of the study, and directions for developing multimedia/learning objects for students in Years 4 and 5.

Presentation Time: Tuesday 2.00-2.30 (Room 3)  Strand: ICT in learning areas (Non-Refereed paper)
The AlphaSmart Dana - real personal computing
Pete Dailhou
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This workshop will look at the features of the AlphaSmart Dana. The Dana is a Palm OS device. It has been suggested that it can be considered as an alternative to the laptop. It combines the convenience and affordability of a handheld device with the ergonomic benefits of a lightweight notebook computer.
This session will look at its features, the opportunities it offers educators and models/strategies for use in the educational environment.

Presentation Time: Tuesday 2.00-2.30 (Room 5)  Strand: Thinking skills (Non-Refereed paper)
How can ICT graphic organiser programs be managed by students and teachers to best suit the needs of primary-aged students?
Catherine Russell
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‘Do we sometimes ask students to carry out tasks for which they have not yet developed the brain capacity?’
This presentation outlines an investigation carried out across a primary school using the graphic organiser ‘Inspiration’ to see if there was any visual evidence of the written theories about executive functioning in the frontal lobe cortex of the brain starting to develop significantly at around the age of eight years.
Three questions were posed. Does the use of the program show a visual correlation to the brain theories? Would an hour’s session with a class of students be a useful tool for teachers in determining the level of their students’ organising skills? Can teachers see patterns of thinking emerging?
This session looks at the results of the research and what application it can have for teachers in their planning and programming.
Providing computer support for outcomes-based assessment

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For more than a decade the intention of Australian educational school system leaders has been to base the curriculum on an outcomes-based approach to teaching and learning. This intention has at best only been partially realized in practice in schools for a variety of reasons. One major and critical reason has been the difficulty in applying this approach to the assessment of students' learning, particularly for students in secondary schooling. To some extent the difficulty has been connected with the philosophic and pedagogic understandings and beliefs of teachers. However, increasingly it is being understood that for teachers to implement an outcomes-based approach to assessment requires considerably more support in access to information, collection of data and analysis of that data. Much of this support will need to be provided through appropriate computer systems, more than likely using networkable portable devices. Unfortunately research and development into the implementation of such support is in its infancy even though the technology is now widely available. This paper provides a background and rationale for such research and suggests what needs to be done to rapidly provide the type of support teachers need now for Australian children to enjoy the benefits of an outcomes-based curriculum.

Communities of practice: Perspectives from pre-service teachers

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This paper will report on the conduct of an undergraduate course where pre-service teachers participate in, and develop or modify an online learning environment. The course has as its main focus, the notion of online virtual communities, and explores students' current trends and practices with communication tools and networked communities with those currently being offered in a variety of educational contexts. During the course participants implement their new or modified online learning environment while undertaking professional experience in a school of their choice. The paper further describes the students' experiences throughout the course and presents recommendations, for educators wishing to espouse a sense of community within online learning environments.

Using the school’s network to maintain and deliver the curriculum

Bryan McHugh and Philip Rebbechi
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While education needs its visionaries, the reality for many teachers in our schools is that they are only 'comfortable' using a small number of programs such as Word, PowerPoint and perhaps Inspiration as well as using the Internet. If we are to 'bring these teachers along for the journey', then we, as leaders, need to develop mechanisms by which we can aide their growth in the use of ICT in the classroom. This paper looks at using a minimal number of programs creatively to produce resources to support a unit of work on 'Early Australia'. By storing these resources on the school’s network and using hyperlinks within these programs, students and staff can navigate easily between resources without extensive file management techniques. The paper will also investigate how we can use programs such as Inspiration to support De Bono’s 'Thinking Hats' and Word to present a unit of work (and its classroom activities) using the Bloom’s taxonomy/multiple intelligence table.
Concurrent session 6

**Bridging the knowing-doing gap – using action learning as a methodology for ICT professional development**

Lindy McKeown and Tanja Obstoj
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Two Queensland Education Advisors show how Action Learning provides a methodology for successfully bridging the gap between what teachers learn about the use of ICT in professional development and changing the actual classroom practice of those teachers. A proven and practical model for planning professional development based on Action Learning will be shared. Success stories of teacher professional development in the use of multimedia and online tools will illustrate how to use this highly effective model to enhance and promote teacher's use of ICTs in the classroom. Teachers, principals, PD teams from associations or districts will be able to see from the case studies shared that this is a scalable strategy that can be used by small groups of individuals, schools, clusters of schools, professional associations, districts or systems in face-to-face and online modes.

**Getting the HOTs with ICT**

Kerrie Smith
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How can ICTs (Information Communication Technologies) foster the use of HOTs (Higher Order Thinking skills) in our students? Focussing on recent international research and reports, this paper will consider definitions of HOTs and what the recent research is saying about the linkage between them and classroom activities that utilise ICTs. The paper will also illustrate how the services of EdNA Online can help teachers and lecturers keep up to date with current thinking and research, and will be supported by a theme page on the EdNA Online web site.

**Teacher education in an online world: Future directions**

Glenn Finger and Glenn Russell
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We contend in this paper that attention to understanding the challenges of teaching and learning in an increasingly online world is needed. In particular, the imperatives of technological change and globalisation are linked to what student teachers ought to learn as well as how they learn. We suggest that future teachers will require skills not currently emphasised in many teacher education programs, and that some skills which have been traditionally considered as important will become less central. More sophisticated understandings of the implications of ICTs for reforms in curriculum, pedagogy and assessment are required. Teacher education programs must move beyond a focus on students’ ICT skills, and beyond integrating ICTs into the existing curriculum to an understanding of the transformative power of ICTs in education. Recent trends and online initiatives are presented to portray emerging online environments which hold implications for teacher education. We provide suggestions for teacher skills in terms of educator proficiencies and effective teaching and learning practice which we believe can provide the stimulus for preparing teachers for teaching in an online world.
Problem solving with Lego in Year 9
Ken Wallwork
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This paper reports on the use of Lego as problem-solving tools for Year 9 students. At SJC we have used Lego Robotics in our Year 9 course since 2000. Over that time we have moved away from prescriptive building and programming to problem-solving learning. In this the students, working in groups, are given minimum training in software for the control units and a series of increasingly difficult tasks to complete using their Lego Robots.

Being a boys school, it is seen as important that the students develop co-operative learning skills and are given feedback immediately as to whether their solution works or not. Since problems in their futures may not have definitive solutions (let alone been thought of yet) they need skills that will allow them to use heuristic skills to develop solutions, if they are to become lifelong learners.

Assignment management: A bottom-up approach
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Managing the submission, marking and return to students of assignments, is a difficult and time-consuming process. Although the problem has always existed and several papers have addressed it, there is still no universally applicable solution. A system that brings benefits to both the academic staff and the student is described. The implementation uses standard office automation products to execute the collection and acknowledgment of assignments and to manage the marking process. It then executes the feedback of results, general comments and comments specific to the student. The system also facilitates the detection of collusion between students and plagiarism. Further, it facilitates the detailed analysis of the performance of the class as a whole by the paper controller. This paper describes the automated assignment management process and concludes the benefits extend to the student as well as the academic staff.

The Tablet PC - all you need
Rose Elsom and Paul Volpe
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The use of the Tablet PC enables, for the first time, the creation of a real electronic teachers 'desk'. Imagine having access to your chronicle, student attendance, assessment results, as well as an archive of all your marked student work. Combine this with the power of a user friendly electronic marking tool and a portable electronic whiteboard in a single two kilogram device, and the possibilities are endless.

What started as separate trials of a new technology at Xavier College and Lauriston Girls' School, has unveiled a device that provides a real opportunity to move teachers into an electronic future without the sacrifice of traditional teaching methods. This presentation tells the story of the school's investigations.
Concurrent session 7

**Presentation Time: Tuesday 3.30-4.30 (Hall E)**  
Strand: ICT in learning areas (Invited Speaker)

**Information literacy and online learning in schools**  
James Herring  
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This paper will examine the need for information literacy to be a key element in the design, development and maintenance of e-learning in schools. It will address the issues of:

- Information literacies and e-learning
- Information literacy models and e-learning
- Integrating information literacy into e-learning
- Teacher and teacher-librarian collaboration in e-learning

The presenter will use materials from a range of countries to provide examples of information literacy and approaches to incorporating information literacy into e-learning in schools. He will then propose future strategies.

**Presentation Time: Tuesday 3.30-4.00 (Room 1)**  
Strand: E-learning (Non-Refereed paper)

**Converging and emerging online learning systems – meeting the needs of learners**  
Janine Bowes  
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The range of options for e-learning can seem overwhelming. Making choices that meet the needs of the learners means navigating the complex territory of available software for online learning systems, models for flexible learning, and effective online pedagogies. Whether at system or school level, decision makers need to be well informed in all of these aspects. This paper explores that territory by unpacking the terminology and concepts through a culinary metaphor. It also attempts to provide an overview of current thinking and approaches with examples drawn from local (Tasmania), national (Australia) and International case studies.

**Presentation Time: Tuesday 3.30-4.00 (Room 3)**  
Strand: ICT in learning areas (Non-Refereed paper)

**Numeracy and ICT - pushing the boundaries**  
Sue Hollands  
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What are the critical issues relating to numeracy today and how does ICT impact upon this? This paper examines the notion that an understanding of statistics is increasingly fundamental and that ICTs play an important role in making sense of the huge amounts of data to which we have access.
Rethinking Leadership.
Sue Toone
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This presentation aims to explore the role of leadership in transforming a school into a technologically rich environment. The presenter shares her experiences in leading sites and working with many site leaders in S.A. Amongst the issues discussed are:
- What is meant by leadership in relation to ICT in schools? How does this differ from management?
- What are the paradigm shifts we need to make around our understanding of literacy? What is appropriate professional development for staff and how can it be supported?
- How do we lead the changes in methodologies required to harness the power of the digital revolution? What is the role of technology in accountability for leadership and teachers?
- Where will the leadership for this revolution in education come from?
- How will we grow effective leaders in this new age?
- How do we bring existing leaders to the forefront and build into their skills the necessary grasp of the new technologies and their implications for schools?
- How do we harness the potential of technology while maintaining the quality of the relationships that distinguish learning in a school?
- How do we use technology to improve the administrative functions of schools so that it best serves the improvement of learning?

Participants will leave with critical questions and resources to help improve their leadership capacity in relation to ICT.

EFL online learning and task authentic interaction for postgraduate students in China
Hua Geng, Wing Au and Jing Chen
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Online language learning has emerged as an updated learning trend for web-based learners, as it has made clear that foreign language learning aims to communicate naturally. A communicative orientation to language teaching is very much in vogue, hence develops the idea of authenticity. The term authenticity is open to a number of interpretations. This paper explores the relationship between task authentic interaction and EFL online learning. The research was carried out among postgraduate students in China.

A virtual learning quilt: integrating Indigenous studies and ICTs
Anne De Nicolo
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This paper presents a project that examines the learning experience that entails creating, critiquing and publishing students' visual texts. Students question and respond to images of their own, and the Australian identity, specifically highlighting relationships between Indigenous and non-Indigenous Australians. SACSA includes Indigenous perspectives across all learning areas. This integration of ICTs and Indigenous Studies allows students to express their own voice visually and to hear the voices of those excluded from official Australian texts. To improve learning outcomes for all students, two consultants were collaborating with teachers and students from middle and secondary years to produce this virtual learning quilt hosted by Catholic Education SA.

ICT Panel
Ralph Leonard, Ken Price, Kathy Shrock
Using an online lesson-planning tool yet?
Ian Smyth
ian.smyth@ceasa.asn.au

This one-hour workshop will demonstrate how to build online learning communities of teachers through the use of a web-based lesson planning tool called XPATA. Together, teachers can plan and share their units of work, relieving feelings of isolation and inexperience whether next door or cross-region. See how teachers develop exciting, engaging units of work on-line which incorporate Gardner's multiple intelligences theory and Bloom's taxonomy as a thinking-skills approach to converting curriculum outcomes into action.

Be Great - collaborate with Centra virtual classroom
Tanya Scobie and Doug Bruce
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This workshop presents the 'live' e-learning environment offered by Centra Symposium that will enable the teaching or training online in real time through a Web conferencing interface. It will introduce the participant interface to the features, tools and functions that can be used during a Centra session.

KidiPads interactive performance system
Jim Edson
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This workshop will involve participants in exploring the ways in which the KidiPads system can enhance the learning of young children and students with disabilities where the focus is not on the fine motor mouse control of using a computer, but on the whole body movement aspects that suit this target student group.
Explore how the KidiPads system allows performers to trigger musical notes and sounds by stepping on "Touch Pads", teaching many musical concepts such as pitch, timbre, rhythm, harmony and melody. Investigate how touch pads can control a Powerpoint presentation incorporating pictures, text, movies and sounds.
Performing arts curriculum areas have their strengths in developing self confidence and creativity. See how this exciting new technology really enhances the learning area and creates new opportunities for self expression.

Queensland ICTE subject area syllabus - step through a challenge or two
Sel Kerans
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Queensland's Information and Communications Technology Subject Area Syllabus is due for release mid 2004. It is very much the framework we have waited for in shaping our computer studies offerings in junior secondary schools, or planning for integration in Key Learning Areas. The potential is for challenge-based learning, with students engaging with higher order thinking, investigation and team approaches to project tasks, with enough flexibility to cater for a range of abilities in an outcomes approach. This paper examines some of the challenges in the spirit of the syllabus and teaching approach.
Concurrent session 8

Presentation Time: Tuesday 4.00-4.30 (Room 1)  Strand: Innovative pedagogical practices (Non-Refereed paper)
Making GIS achievable in the classroom – an overview
Malcolm McInerney
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Geographic Information System (GIS) is an exciting learning tool that is increasingly being used in classrooms across Australia. Malcolm McInerney from the Geography Teachers Association of South Australia will outline the recent developments in the use of GIS in Australian and American classrooms. The address will describe and demonstrate the strategy developed in South Australia that has made the teaching of GIS achievable for teachers in the classroom whilst enhancing the spatial learning of students. The GIS skills development process and associated Spatial Learning Model will be outlined and Malcolm will highlight the stages required to overcome the initial hurdles of the “GIS learning curve”. He will also demonstrate some of the applications of GIS undertaken by students across Australia and discuss the huge potential of GIS to enhance the learning of students. Most importantly the address will highlight the motivational quality of GIS for students and how GIS can help promote geography as a vocationally relevant and enriching learning experience for students.

Presentation Time: Tuesday 4.00-4.30 (Room 3)  Strand: ICT in learning areas (Refereed paper)
Student perceptions of Internet use in the mathematics classroom
Bruce White and Esther Yook-kin Loong
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This paper draws on data taken from a survey which was administered to students (N=97) after their teachers have used the Internet in their mathematics classrooms. These students range from Year 8 to Year 12. Their teachers have used the Internet in a variety of ways that are relevant to the learning objectives set. This paper describes the approaches taken and students’ response to these approaches in their mathematics learning.

Presentation Time: Tuesday 4.00-4.30 (Room 4)  Strand: Innovative pedagogical practices (Refereed paper)
Using Activity Theory to investigate the influence of teachers’ beliefs upon their teaching of science through robotics
Stephen Norton
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Emerging curriculum documents are recommending an integrated problem based approach to the teaching of science and technology practice. The construction of robots has been identified as rich in science and thus it is a medium through which science can be learnt. However, little research has focused upon teacher implementation of robotic learning and in particular upon the effect of teacher beliefs upon student learning in this environment. This study used the analytical frame of activity theory to explore the effect of teacher beliefs on how they implement a robotics unit for the first time with middle school students. It was found that the science remained implicit. Further, each teacher enacted different rules and assigned different divisions of labour such that student use of tools and learning was quite different in the two classes. The findings have implications for pre and in-service professional development as well as integrated unit planning.
Using Microsoft Agents to improve numeracy skills in the middle years
Mick Dineen and Roy Messenger
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Seaview High School staff from technology studies, home economics and mathematics worked together in an AGQTP funded action research project examining how they could improve student numeracy skills through the use of ICT’s. Students were asked to write the scripts for Microsoft agents as a means of providing numeracy information for the program user. In doing this, students had to develop an understanding of the numeracy being used and the language to explain the numerical process while working with a familiar medium. Working with teacher teams from four other schools, Seaview staff participated in a six-month project involving them in a range of activities to develop their own understanding of numeracy and the action research process. Facilitation of the project by the Australian Science and Mathematics School and Colonel Light Gardens Primary School enabled the project participants to develop and share strategies to strengthen numeracy across curriculum areas in the middle years. This session will provide an overview of the project at Seaview High School and involve participants in working with the Microsoft agents.

Teaching computer programming to promote problem solving strategies of students In Samoa: The CABLE approach
Ioana Chan Mow, Greg Yate and Wing Au
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This paper describes a study on the effectiveness of a cognitive apprenticeship-based learning environment (CABLE) in the teaching of computer programming. The pedagogical model used in this study employs a combination of practices such as directive support, responsive cognitive apprenticeship, collaborative learning, stimulating meta-cognition, using technologies via the use of tele-apprenticeship and online or computer mediated communication (CMC). Students who participated within the CABLE project scored more highly on test scores, relative to comparable students who did not participate within CABLE, but these effects were found to be restricted to high ability students within the present sample.
Concurrent session 9

**Global online school networks**
Kate Dibben
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Online communities and networks don’t just appear. They are created and nurtured. This presentation will target strategies for participating in online school communities and networks as well as strategies, processes and best practice models for facilitating your own successful online community. This paper will discuss what needs to be considered when running a global online project or community, how to create online communities and begin finding out about places and strategies already existing to support teachers and students who want to develop global online school networks.

**Limitations of online learning -- a focus on authentic assessment**
Rose Marra and David Jonassen
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In this paper, we examine the limitations of online course delivery and management systems in terms of their ability to support authentic assessment. Online courses are often criticized for their emphasis on reproductive learning. We argue that the ability to effectively assess complex learning outcomes is limited by the lack of assessment affordances in the popular course delivery and management systems. Because popular online course delivery and management systems do not support authentic forms of assessment, the range of student learning outcomes is restricted to reproductive learning. Attempts to work around these limitations over-rely on student self-regulation, resulting in student frustrations and negative student perceptions of the learning experience.

**Digital templates and mathematical investigations**
Jim Sprialis
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Digital templates were originally produced to provide students with physical disabilities with a means to investigate and record mathematical findings. The universal design of the templates, however, provides a greater level of engagement for all students and caters for students along the whole continuum of learner differences, styles and abilities. The templates provide scaffolds for students to record open-ended investigations of spatial concepts. Digital versions of recording templates such as geoboards, grids and protractors give teachers a flexible curriculum tool. They also give students a flexible means of constructing and presenting their learning due to the digitized nature of these templates. Students are able to readily transform their mathematical recordings into a range of modes.

This presentation will also promote the use of a combination of freeware programs that assist students in transforming their static mathematical investigations into dynamic animations. As students gain an understanding of how different tools can be used to complete this digital process, they also go through a process of constructing, de-constructing and re-constructing their learning discoveries.
Reviewing our school based research

Wendy Legge
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The ICT Research projects being conducted by teachers in South Australian schools are intended to build on the knowledge and good practices of DECS educators regarding the impact of ICT on teaching and learning. The focus for the research is on the effective use of ICT across learning areas and the processes and teaching methodologies used rather than on the technology. Key focus for the research is based around the question: How can ICT make a difference to learning outcomes, school or preschool management or educator professional development?

The intended outcome of these research projects was to be a series of reports that are a rich guide to other educators in their use of ICT for teaching and learning. However a review of the focus and structure of the research projects is showing us that we need to rethink how we do this so that we are more strategic in what we research, how we gather our data and how we present this.

Future research projects will be centrally driven around a few key questions in order to seek answers and evidence to support beliefs, thoughts, premises that we have long held but validated mainly through a few anecdotes. This workshop explores the strengths and weaknesses of our current approach and directions for future school based research over the next two years.

Exciting learners within an online collaborative learning environment: A proposed model for in-service teachers

Marissa Wettasinghe
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This project on motivation and online learning was initiated to establish guidelines and help define strategies for future development of online learning initiatives for in-service teacher education programmes. This was achieved through investigating the experiences of learners who had participated in a collaborative online learning project. In this paper, I describe my efforts in working with a group of in-service teachers at the National Institute of Education (Singapore) in their online learning sessions whilst attending a blended learning module comprising online learning and face-to-face classroom sessions. For the online learning sessions, their assignment was to complete a group task using an online discussion forum as part of their final requirements towards the successful completion of a technology module within an in-service professional development programme. In my attempt to move away from having this task being completed via the traditional methods of lecturing and teaching, I used strategies that were built upon established learning theories and pedagogies to encourage active and engaged participation in computer-mediated online discussion. Results from a post-module evaluation survey indicated that a majority of the teachers reacted positively towards the online experience, with valuable lessons learned, which are documented for proposed strategies towards enhanced and effective online collaborative learning for in-service teachers.
Presentation Time: Wednesday 9.15-10.15 (Hall E)  KEYNOTE SPEAKER

Toni Downes
Concurrent session 10

Presentation Time: Wednesday 11.00-12.00 (Hall E)  Strand: ICT in early childhood education (Invited Speaker)

ICT in the Early Years – Getting it Right from the Start
Rachel Ager

Until 2000 the provision of ICT for the youngest children and staff in Northamptonshire’s schools was, as it was in many other counties in England, very patchy and of a low quality. This presentation will outline the exciting initiative in Northamptonshire in which resources were targeted at developing the effective use of ICT in the teaching and learning of the children (3 – 4 year old) within the county's forty-eight nursery schools and nursery classes. A coherent learning and ICT provision is being established across all these schools. Evaluation of the new ICT provision by the practitioners in the schools indicated that it had a positive impact on the all the children’s learning, a positive impact on the motivation of all the children and on their level of engagement whilst learning. Best practice is now being established in the use of ICT in teaching and learning of the children (4 – 5 year old) in Northamptonshire’s Reception classes and will be disseminated across all 240 primary schools in the county over the next 2 years. ICT is being used evermore effectively in teaching and learning and is now having a real impact on the achievement of the youngest children in Northamptonshire’s schools.

Presentation Time: Wednesday 11.00-11.30 (Room 1)  Strand: Leadership and Change (Refereed paper)

Teaching and learning with new materials (technology): Case studies from Hong Kong
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In Hong Kong, as with many other countries, there is the belief that educational reform will endorse lifelong learning with the help of technology. Many leaders and policy makers correlate the use of technology with pedagogical changes. It is assumed that the greater the skills of the teachers in using technology and the more computers available to students will lead to better learning - unfortunately this is not always the case. For many Hong Kong classrooms the teachers remain teaching in a transmissive, exam driven culture (teaching for the test) and the technology is used for lower level activities such as teachers presenting lectures via PowerPoint and students' word processing assignments and searching the Internet. This paper presents six case studies conducted in various settings in Hong Kong and offers insights into what challenges lie ahead as they research…reform…..and try to realize the potential of teaching and learning with new materials (technology).

Presentation Time: Wednesday 11.00-12.00 (Room 3)  Strand: ICT in learning areas (Non-Refereed paper)

Adobe Photoshop Elements 2 – developing critical literacy
Alan Rosenfeld
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Images can be created, edited and enhanced to change the mood, message and intent of a scene. Understanding how images are manipulated can assist in learning of visual critical literacy. This presentation will focus on how Photoshop Elements 2 simplifies the processes of image creation and manipulation. This presentation will further illustrate how The English Teachers Association NSW is introducing Visual Literacy into the classroom in their Professional Development program with Adobe Photoshop Elements 2.
Fundamentally, The Thinking Schools, Learning Nation Vision is to improve our education system in preparing Singaporeans for the challenging years ahead. The Ministry of Education has embarked on a national plan, Masterplan for IT in Education to fulfil the anticipated needs of the Information Communication Technology. Everyone in school is expected to respond to the demands of this expanded horizon of learning. Teacher training has become the centerpiece of this plan as teachers are the key implementators. The National Institute of Education and the Educational Technology Division, Professional Development and Consultancy Branch provide the much needed training for both pre-service and practicing teachers.

This symposium describes three papers on the support and preparation given to teachers from different perspectives.

**Paper 1:** IT Masterplan: An Impetus to New Frontiers in Education
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The vision of Thinking Schools Learning Nation in 1997 sowed the seed for the three great initiatives, one of which was Masterplan for IT in Education, a blueprint for the use of IT in schools. It lays the foundation and comprehensive strategy in creating an IT-enriched learning environment for everyone in schools. They should be equipped with ICT skills to face the challenges of an innovation-driven economic era. This paper provides a snapshot of the two phases of the Masterplan. It discusses the rationale and goals in embarking the first journey (mp1) and the conceptual framework and vision which propel the move to the next journey (mp2).

**Paper 2:** Using ICT for Teaching and Learning of Mathematics: A Snapshot of Pre-Service Teacher Training
Dawn Ng
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The Ministry of Education’s (MOE) vision of Thinking Schools Learning Nation saw an active promotion of ICT-infused lessons in the teaching and learning of mathematics as part of its IT Masterplan initiative. Since 1997, numerous in-service courses conducted by MOE and sharing sessions at the Teachers’ Network have been a contributory factor in maintaining teachers’ interest in using ICT in their teaching. As we progress into the second IT Masterplan, it is hoped that pupils can now use ICT “effectively for active learning”.

This paper presents some aspects of ICT training provided for prospective primary and secondary teachers in Singapore specifically in mathematics teaching modules in response to the MOE’s IT Masterplans and at the same time drawing upon considerations on the desired outcomes of initial teacher training. It hopes to offer examples in ICT lesson planning, pedagogical strategies and considerations during implementation from a Singapore perspective. The assessment of trainees’ learning and their concerns will also be discussed.

**Paper 3:** In-Service Staff Development in Integrating ICT into Teaching and Learning
Hazel Tan
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This paper will discuss the various opportunities for staff development in integrating ICT into teaching and learning. Under the IT Masterplan, the Ministry of Education offers workshops and courses to about 24 000 teachers in Singapore. In particular, the paper attempts to highlight some examples of ICT training for Mathematics teachers, including their feedback and challenges encountered. The paper will also discuss the current and future trends of the Second Masterplan (mp2).
ICT and professional learning - where are we at?
Greg Gebhart
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The Victorian Education Department has poured millions of dollars into ICT, however the outcomes are less than impressive. Many teachers still have minimum ICT skills; students are frustrated with the lack of teacher knowledge, poor network designs, aging equipment, and lack of ICT leadership. This presentation will discuss what went wrong and how we can fix it, including tips for innovative PD, long term cost savings, developing leadership and more.

Group creativity: A tool for answering subjective questions collaboratively
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Group Creativity is a web-based tool designed for students to collaboratively participate in answering subjective questions based on graphics such as diagrams, pictures, charts and images prepared by the teachers. Students are provided with a working space for them to contribute their understanding of the problems; to respond to others’ questions, insights and solutions and to be accountable to each other to accomplish the task. Completed collaborative activities are available in a shared repository for the entire classroom understanding on the learning topic assigned by the teacher. Group Creativity is equipped with facilities for teachers to prepare, execute and monitor group activities. This paper reports on a study using the Group Creativity software. It was found that teachers viewed Group Creativity as a useful tool to assist them in carrying out collaborative learning activities in the classroom setting or at a distance, while students found Group Creativity to be interesting and motivating in group learning.

Turning classrooms into TV production studios
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Undurba State School is located in the suburb of Murrumba Downs, southeast Queensland. It is a school of in the midst of a revolution, inspired by the journey of one teacher. The application of Movie Maker software to curriculum activities has been greatly enhanced by the trial of the ‘Visual Communicator’ package, turning the school on its virtual head with excitement for the potential in learning. The results to date have been astounding and have raised the level of aspiration for teachers seeking ideas and applications for effective integration of ICTs in Learning. With the use of virtual screens through green screen technology, the students may appear to be in any location at all. This paper examines the integration of this software into the learning of students and it was found that upper primary students could quickly become independent, confident producers of video interviews, reports and documentaries.

The Tablet PC - all you need
Rose Elsom and Paul Volpe
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Over the past 18 months, both Xavier College and Lauriston Girls’ School have trialled Tablet PCs in a limited manner and this provided the opportunity to explore and develop the application of the technology. These trials have utilized tablets from different manufacturers but in each case have used the convertible clamshell design. The aim of the poster is to provide information relating to the methods and outcomes from these trials, without endorsing a particular model or manufacturer.
Explore the Learning Federation's new digital curriculum materials for Australian and New Zealand students

Olivia Clarke
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The Le@rning Federation, an initiative of the Australian, State and Territory governments and the government of New Zealand, is developing high quality, pedagogically sound, interactive, multimedia online curriculum content to be made available to all students in the P-10 years. The resources, in the form of ‘learning objects’, are based on the most recent research into how children learn and how teachers facilitate learning. In this hands-on workshop you will view and explore selected learning objects, understand the principles that underpin their development and consider ways in which the materials might be effectively integrated into curriculum programs and used with other digital and non-digital resources and tools.
Concurrent session 11

Presentation Time: Wednesday 11.30-12.00 (Room 1) Strand: ICT in learning areas (Refereed paper)
The challenges of integration of information technology in education in Hong Kong
Kitty Ho and Wing Au
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Information technology (IT) is changing the global economy and has brought many changes in all aspects of life. IT is now being used extensively throughout the world for collecting information, constructing knowledge, distance and flexible learning, online communication and global collaboration for lifelong learning and work. To ensure that students are equipped with necessary skills in a digital and information age, the Hong Kong government has provided several documents to help schools plan for the integration of information technology into the school curriculum; with the aims to improve teaching and learning and to produce students who are confident, creative, independent and life-long learners. The paper begins by reviewing the benefits of integration of IT in education. It focuses on the use of IT in teaching and learning in Hong Kong after the introduction of the five-year strategy in 1998. In order to generate further discussion and development in the integration of IT in Home Economics, the usage of IT in the teaching of Home Economics will be explored and discussed. This will form the basis for a larger scale study to investigate how IT can be used in Home Economics to enhance teaching and learning.

Presentation Time: Wednesday 11.30-12.00 (Room 5) Strand: IT/Computing studies (Non-Refereed paper)
COIL: Campbell High School OneNote information literacy project
Michael Sisley and Thea van Os
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In December of 2003 a group of government and non-government teachers evaluated a major new software application for education, Microsoft OneNote 2003. The group decided the program could facilitate improvements with students learning information literacies in middle school and above. In early 2004 both the Catholic Education Office in Canberra and the Computer Education Group of the ACT (CEGACT) applied to Microsoft to continue testing OneNote with students and teachers and in May of 2004 the ACT Department of Education funded a test at Campbell High School, supported by Microsoft (Australia) and CEGACT. The trial at Campbell High School is called the COIL Project. This paper reports on the project and its progress to date.

Presentation Time: Wednesday 11.30-12.00 (Room 10) Strand: Innovative pedagogical practices (Refereed paper)
Portable computing supporting project-based learning
Paul Newhouse
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In 2002 the author worked with one teacher in a secondary school investigating the use of computers to support project-based learning. The learning programme centred on a long-term group project with access to portable computing support. This paper reports on the outcomes of this learning programme and the ways in which a class set of notebook computers supported the implementation of the programme. Analysis is made in terms of current knowledge on the way children learn and the ways in which computers may support such learning.
Gifted students and information and communication technology: A plethora of opportunities

Sue Urban
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For gifted students, information and communication technologies can open the doorway to more knowledge, new issues and different environments and cultures. It can also put them in touch with other gifted students and experts to debate ideas and construct new learning, during which the gifted students themselves can work at their own research, following their own interests, while remaining in the class with their peers. This paper, centred upon ICT, thinking skills and online projects, will highlight mainly resources found on the World Wide Web.
Concurrent session 12

**Presentation Time: Wednesday 12.00-12.30 (Hall E)  Strand: ICT in early childhood education (Non-Refereed paper)**

**Kidspiration as an open-ended software tool in the early years classroom**

Judy Beal  
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Kidspiration is the young peoples' version of the very successful thinking software, Inspiration and the 30-day trial version is available for free download as are the notes for a workshop session. This presentation will show the software tool, and also explore some possibilities of uses in the classroom and ways to integrate across the curriculum. This will include examples of student work and ideas for moving beyond the existing templates.

**Presentation Time: Wednesday 12.00-12.30 (Room 1)  Strand: E-learning (Refereed paper)**

**Making IT have meaning beyond novelty**

Malcolm Field  
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Much has been said about the use of ICT in language education, but the reality in Japan is that most students' participation wanes over time. This paper outlines a case study that sought to examine a hypothesis, which suggested that certain conditions would favour language transference from an ICT-based learning event to a face-to-face interaction. The results were promising and there was evidence to show that validity and reliability variables may be important in such transference.

**Presentation Time: Wednesday 12.00-12.30 (Room 3)  Strand: Leadership and Change (Refereed paper)**

**A teacher’s journey from access to engagement with technology**

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This study investigated the critical factors that might contribute towards a successful transition from teacher access to technology towards a disposition to engage with technology. The notion that teacher access to technology resources will, by itself, facilitate educational change is considered perilously naïve. The contribution to the research area involves going beyond the issue of access, to illuminate those conditions that support a progression along the path to engagement. Engagement in this study refers to teachers who have access to and a positive disposition towards the use of technology for personal and professional purposes in social and educational contexts. The investigation draws upon research that has identified stages of teacher technology adoption. A multiple case study approach was employed. Teachers, learning technology support personnel and principals across four schools as well as a system representative were surveyed and involved in semi-structured interviews to explore the significant factors in the context of the Linked Catholic Schools (LinCS) project implementation in 2000. The findings raised issues surrounding: home computer ownership; teacher support; partnerships; professional development and the need to address an interrelated set of factors simultaneously in order to facilitate the progression from access to engagement.
Short-term, project-based collaborative websites for teachers - using SharePoint Services in the ACT

Thea van Os and Michael Sisley
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For the last two years both the Catholic Education Office and the ACT Department of Education offered the SharePoint Services collaborative server software to support special projects, or special groups of teachers, often spread over vast areas of land. This paper discusses the advantages and disadvantages of using this free software to support teachers' professional learning and previews some of the features of SharePoint Services II, with WebLogs, .NET Web parts and a host of other cool, new features to help teachers collaborate.

MiStory and ICT in the English classroom: An exploration into the creative minds of year 7 students

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The idea of having a group of students produce an e-Story was conceived by the Teacher-Librarian, after she was shown an online work written and illustrated by a group of young adults, one of whom was an ex student. MiStory was project managed by an English teacher who has a degree of experience working with students to produce pseudo publications. The e-Stories, which each of her year 7 students created, were linked together through a common index to become chapters in a much larger e-Story: MiStory. The library web-master/multimedia technician provided advice about the way the project could be carried out, and about the form the project could take. She also designed the template that was eventually used by the students and which is described in this paper. The paper details the inspiration for the project, the process of putting it together and keeping the students on time and to task, and the rather surprising end result.

ThinkQuest - the world at your fingertips

Ralph Leonard and Carol Calderwood
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Conveying information to an unknown but real audience requires considerable skill and presents a real-world challenge that engages students. The combination of information gathering, organising, planning, writing and creative design to build a website through teamwork is a demanding task, but one that is also rewarding. The International ThinkQuest competition adds another dimension because the multinational collaboration can become a special reward in its own right. This free international activity is readily available to every school, teacher and students aged 9 to 19. It emphasises the information content of the websites and encourages genuine research by students. The presentation will describe the project and present the experiences of the Australian who has coached a winning multinational team in the most recent international competition and achieved considerable success in previous events.
Concurrent session 13

Presentation Time: Wednesday 1.30-2.30 (Hall E) Strand: Innovative pedagogical practices (Invited Speaker)

The case for computing

Gary Stager
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Computing matters in the creative and intellectual development of children. Whether the learner is a year three girl, a severely at risk teenager or an already gifted musician, computing can take the learner’s ideas farther than the learner could have taken them on his/her own. The current educational climate has reduced computers to information appliances, or worse. Too few students are offered access to the rich-learning opportunities made available by computing. This deprivation has serious implications for children and the society at-large.

This paper, based on the author’s experience, passion and actual classroom examples, makes the case for a renewed commitment to learner-driven school computing. While challenges abound for teachers confronting the second generation of computer fluent children, there are even greater opportunities to revolutionize the learning process. The case will be made for using computers in constructive ways and as a catalyst for creating teaching based on the needs of each child. We need to expand our concept of educational computing if more children are to be engaged in the rich learning adventures they deserve.

Virtual schools: A critique of two models

Glenn Russell
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This paper discusses the emergence of two models of virtual schools. The in-school and out-of-school models of virtual schooling are examined in terms of flexibility, industrial models of schooling, socialization, student suitability for online environments, and teacher training and professional development. The paper concludes that there are advantages and disadvantages of each model, and that the suitability of the type of virtual school for students will depend on student needs.

A comparative analysis of online and paper-based assessment methods: A university case study

Paul Campton
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There has been a continuing trend for educational institutions to focus on e-learning. This has been accompanied by a shift towards online assessment, either of a formative or summative nature. This paper is a critical analysis of online assessment methods introduced into a first year unit in the Faculty of Commerce at the University of Tasmania. It reflects on the effectiveness of the change from a paper based assessment method to an online system over a period of two years, as well as on the advantages and disadvantages of the change for students, lecturers and tutors. The performance of students in undertaking the unit in Semester 2, 2002 and Semester 2, 2003 was measured using a common assessment test; in 2002 using a paper based system and then in 2003 using an online system. Analysis was then performed on a cohort within a semester. The results show there is no significant difference in performance between the groups, however there existed a number of administrative benefits associated with the online assessment method.
ICT in preschools forum
Sharon Arney and Susan Hill
sharon@tsosf.edu.au

You will have the opportunity to be part of a conversation to share and reflect on current initiatives with ICT in Early Childhood. What ICT experiences are young children bringing to the early childhood environment and how does this impact on their learning? What implications does this have for early years educators? Engage in the opportunity to provide directions and considerations for Professional Learning that will continue to enhance young children’s learning through ICT.

Look out! Exploring Indigenous youth identity using short film
Louise Mather and David Wilson
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Le Fevre High School in South Australia began developing a Commonwealth project Working Together for Indigenous Youth (WTIY) during 2003. The initiative within the school was to develop a Centre of Excellence in Multimedia for Indigenous Students. The initial task was to develop connections with indigenous community groups associated with the school and students. The community and school partnerships that developed have formed the basis for bringing positive student experiences and talents into the curriculum.

This paper will discuss and present (i) how a trial program was developed with years 8 & 9 Indigenous students in consultation with Technology School of the Future (TSOF); (ii) how senior school projects were managed within mainstream multimedia courses; (iii) view examples of student work (Years 8-12); (iv) the initial research data and students comments; (v) a range of teaching and learning materials; and (vi) the sustainability of the program in the school curriculum.

Network: Full of glamour, motivation and potentiality
Xinhai Xu and Wing Au
xuxinhai2211211@sohu.com

This paper reports on the implementation of a network in a primary school in China and how the network has impacted on the learning of its students. It will also explore future practices in that school with the use of the network. According to the needs of China's new round of reform of curricula and the latest theories on using information technology in education, it was decided that the focus will be on exploring how to offer abundant network resources in an optimal and efficient manner, building new practical platforms, such as teaching designing institute and resource centre of curricula, and creating best study environment through special-subject studying website as well as proposing the innovative teaching mode.
Research, communication and ICT in our digital society: One school's perspective  
Kay Clifford and Margaret Holman  
kayc@blforest.sa.edu.au

The aim of this combined RBL/ICT teaching and learning initiative at Black Forest Primary School is to enhance student learning outcomes through collaborative team planning, while employing constructivist pedagogies, the Information Process and higher order thinking skills. ICT is a seamless inclusion during each stage of the process: planning, implementing, evaluating and reflecting. Units of work, planned in year level teams aligned with the SACSA Framework bands, are framed around a ‘big question’ or key issue. Scope for students to collaborate and debate in the planning phase and during research tasks, to clarify their thinking, is an essential aspect built into planning structures in order to facilitate informed decision making. Students are encouraged to choose and use ICT appropriately with meaningful discussions centred on the options for sharing their opinions with others often with an interactive multimedia component.

Using online collaboration tools to achieve project-based learning outcomes  
Bruce Chynoweth and Rene Hahn  
bruce@myinternet.com.au

This workshop will demonstrate the use of simple online collaboration tools that make it easier for teachers to engage students in learning. Using myinternet’s myclasses virtual learning environment, participants will have an opportunity to see, use and discuss how interactive discussion tools can be used in a classroom. The overarching emphasis of this workshop will be using the immediacy of the technology to enhance group learning and student thinking. A way of supporting teachers to change the way they deliver curriculum using ICT, is to demonstrate, in very practical ways, how they can do this. Teachers will participate, as students, in a model lesson that has been trialled with middle years students in country Victoria. The lesson will involve a simple research and reporting exercise by the ‘students’ that involves presenting and justifying individual findings through an online discussion tool embedded in the myclasses virtual learning environment.

The Virtual Schooling Service dances  
Felicity Mandile and Bob Godfrey  
fmand1@eq.edu.au

Queensland’s Virtual Schooling Service (VSS) has gained both national and international recognition in its delivery of school-based curriculum via Information and Communication Technologies. The VSS is an exemplar of excellence in distance education and was initiated in response to the Queensland Government’s Smart State agenda, which focuses on the creation of valuable learning communities to engage students and broaden their career pathways. By sustaining quality learning environments throughout the state, the VSS has introduced new patterns of distance learning by providing rural, remote and metropolitan students with subject options that would otherwise not be available to them.

The newest course offered by the VSS is Dance, an innovative project that utilises videoconferencing in the delivery of practical based curriculum. The unique delivery strategy used in Dance sets it apart from other VSS courses and in fact, other distance modes of learning across Australia.

This workshop demonstrates both the course content and delivery mode, with videoconferencing technology enabling students to interact live with the Dance teacher to exchange ideas and to provide immediate feedback on live performances.
Presentation Time: Wednesday 1:30-3:00 (TSoF Performance Room) Strand: E-learning (Workshop)

Using the Janison Toolbox Jetty environment

Andrew Fergusson and Bill Sweeney
afergus@pac.edu.au

Janison Toolbox has a variety of learning environments including the Course Library and Jetty. The latter provides a self-contained subset of Janison tools that allows communication groups to be created and integrated into normal email. Subscribed members receive an email that automatically logs them onto the site and provides access to tools such as chat, discussion groups and instant messenger. The workshop will be a hands-on introduction to Jetty.

Presentation Time: Wednesday 1:30-3:00 (TSoF Systems Room) Strand: Networks & infrastructures (Workshop)

Access to the computer labs made easy for all curriculum areas

Peter Niass
peter@ozintell.com

There is no, an enormous amount of electronic information and dynamic curriculum material available to teachers and students across all subject areas. However teachers of non-computing subjects visit the computer labs VERY INFREQUENTLY. The reason is that it is still, in practice, a difficult task to effectively teach, share information and manage student activities in a computer lab, even for "experts". CLASS IT software is a giant leap forward in making computer lab management simple and intuitive, for ALL teachers. This workshop will present the results of a NSW classroom trial of the software, and give participants first hand experience of using this type of network management software.
Concurrent session 14

Realise the potential of myfuture.edu.au

Suzanne Curyer
scuryer@educationau.edu.au

Myfuture.edu.au is Australia’s national online career information and exploration service. Myfuture sets a new international benchmark in career information and exploration services. It has been recognised by the OECD’s Review of National Career Guidance Policies in 36 countries as a leading example of an ICT based career service that includes comprehensive career information and diagnostic tools. Models and strategies for further use will be presented.

The service assists people to understand the world of work, develop career management skills, decide on subjects to study and find out how to get the job they want.

The WA perspective on effective teaching and learning with ICT

Deb Newman
Deb.Newman@det.wa.edu.au

The Department of Education and Training Western Australia has embarked on some major projects to improve teaching and learning with ICT. In particular the 100 Schools Project aims for the first time, to provide a strategic program of professional learning for all staff, based on several key messages about the appropriate and critical use of ICT to enrich teaching and learning. Through the use of the DET designed ‘Teaching and Learning with ICT – a self evaluation guide’ teachers and schools are provided with a frame of reference to gauge progress with the use of ICT. Other projects such as the ICT Innovators; Online teaching and learning system; Notebooks for students and Service Area consultants, provide support at system, district and school level for improved outcomes for students using ICT.

Individual differences and its implications in web-based learning design

Hesham Alomyan and Wing Au
Hesham.Alomyan@postgrads.unisa.edu.au

In the past ten years the Web has attracted many educators for purposes of teaching and learning. The main advantage of the Web lies in its non-linear interaction. This means that students can have more control over their learning paths. However, this freedom of control may cause for some students, disorientation, cognitive overload and, ironically, control problems. To investigate these problems, some researchers have shifted their focus to how web-based learning is used by learners with different characteristics and preferences. This paper outlines the findings of some research on individual differences in the context of web-based learning. Moreover, this paper also addresses how web-based learning systems can be adapted to learners’ needs and styles. Finally, this paper presents an adaptive web-based learning model.
The potential of partnerships to enhance the use of ICT in schools
Jenny Jay, Brian Baily and Anne Christodulou
j.jay@ecu.edu.au

This paper reports on a successful partnership between one university and a number of schools in an Education District in Western Australia. The partnership involved university staff, tutors, some of whom were also teachers working in the school district, practising teachers and first year undergraduate teacher education students.

At Edith Cowan University, Joondalup, students studying in the K through Primary Programme must fulfil the requirements of an ICT (Information, Communication Technology) unit of study. A major focus of this unit is that the University students complete an authentic project in the classroom where they are participating in school practicum experience.

This paper describes the experience first-year University students had when planning and implementing a school based technology project and the school projects that were produced. Details of the achieved and potential outcomes accomplished by the University staff and students in their semester of work, are described.

The successful outcomes of this work resulted in the University teaching team receiving Edith Cowan University, Professionalism in Teaching and Learning Award (2003).

Engaging students in HOTS using ICT, SACSA at Hallett Cove School - "how to make the horse thirsty"
Steve Nicholls
priornic@senet.com.au

This poster will include examples of student work from units developed collaboratively by staff in the Junior and Middle School sections of Hallett Cove School, using ICT to address some of our school priorities for 2004: Developing Student Engagement in Learning: Effective Methodologies and ICT.

An integral part of this poster will be a proforma for planning, examples of how Higher Order Thinking Skills have been integrated in the learning and an explanation of how ICTs were embedded in the units of work.
Concurrent session 15

Presentation Time: Wednesday 2.30-3.00 (Hall E)  Strand: Innovative pedagogical practices (Non-Refereed paper)

Changing the classroom dynamics using ICT - creating an environment where students are responsible for their own learning
Greg Gebhart
greg.gebhart@lowanna.vic.edu.au

Traditional teaching methods struggle to captivate students or motivate them to learn. Changing the pedagogy in the classroom has been identified as a solution to developing new learning environments. But how does the teacher go about creating this change and what processes can be put in place to ensure that a new learning environment is created? At Lowanna College the VET in VCE Multimedia program incorporates a wide range of online learning, computer-based training and teacher strategies to enhance and motivate students. Celebrating success, inspiring students, showcasing achievements and encouraging students to be responsible for their own learning, have provided improved outcomes in the classroom and beyond. Students work at their own level and pace, with the teacher facilitating, demonstrating and assisting with individual student’s needs. The change of classroom dynamics seems to be directly related to the teaching strategies incorporated in the classroom where students find that learning is fun.

Presentation Time: Wednesday 2.30-3.00 (Room 1)  Strand: E-learning (Non-Refereed paper)

Live online learning with Centra symposium
Enver Malkic
e Malkic@oac.sa.edu.au

The Open Access College in South Australia has pioneered a ‘live’ online learning environment with the introduction of Centra Symposium. Centra is a web based software application designed to provide the tools and facilities to conduct ‘live’ online lesson delivery, professional development, training and meetings. The college delivers curriculum, R-12, to students around the state as well as students studying from home. To tap into this unique learning environment students need access to a PC with an internet connection. Students are able to work collaboratively through features including virtual whiteboards and ‘breakout rooms’ for smaller group work. Centra is allowing teachers to engage students in a rich learning environment with teachers reporting a greater eagerness on the part of their students to study, work collaboratively and to experiment with freer written expression. It also is allowing students to receive more immediate feedback on their learning, pursue learning outcomes in social skills, literacy and a range of socio-cultural perspectives. This software is having a huge impact in lesson delivery and teaching methodologies as well as quality teacher professional development to educators outside the major metropolitan areas. This presentation demonstrates ways in which this powerful medium is being used in South Australia.

Presentation Time: Wednesday 2.30-3.00 (Room 3)  Strand: ICT in learning areas (Refereed paper)

Improving the planning, conducting and reporting of courseware evaluation: Development of a model
Corina Mulhollan and Wing Au
corina@chariot.net.au

This paper presents a model that has been developed to help evaluators to produce effective evaluations of courseware. The model, which was developed as part of a doctoral thesis, is structured in three phases - Planning, Conducting, and Reporting. These phases are made up of components that assist those involved in evaluation to make careful and objective decisions, thereby overcoming a number of problems associated with courseware evaluation. In order to assess the soundness and usefulness of the model it was reviewed by a number of experts in the field – both academics and practitioners. Feedback was given on such aspects as the structure and navigation, the components, the major themes, and the general utility of the model. Suggestions were then addressed in a revised version of the model that is available on-line.
**Presentation Time: Wednesday 2.30-3.00 (Room 5)  Strand: Innovative pedagogical practices (Refereed paper)**

**Authentic learning through the use of digital video**

Matthew Kearney
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Over the past decade, digital video has developed from an expensive, rather clumsy medium, to a cheaper, user-friendly medium with many capabilities that facilitate learner control. This development has given rise to a host of new applications in education, including the ability of students to capture, edit and generate their own video; a process supported and made viable by the development of clear and easy-to-use video-editing software. As a result, student-generated digital video is now being used in classrooms to support, extend, or change, pedagogy and curriculum outcomes. The project on which this paper is based studied the use of digital video in five schools, to study the ways in which pedagogy was enhanced by this use. One area we examined was how digital video developed authentic learning, and what in fact, this meant. This paper examines teacher and student beliefs about the perceived ‘authentic nature’ of student-generated digital video tasks and will present sample uses that develop understanding of authentic learning.

**Presentation Time: Wednesday 2.30-3.00 (Room 10) Strand: ICT in learning areas (Non-Refereed paper)**

**Going multimedia - Expect the unexpected**

Wendy Herbert
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Four years ago when Sydney Girls High School introduced a multimedia course into the junior curriculum, staff had no idea what an amazing impact it would have on the school. It was obvious that students would respond positively to the challenge of something new, but nothing prepared staff for the effect that it has had on students, the staff and the way the school ‘does business’.

The success of the multimedia course has had a marked impact on both students and staff. Moviemaking is now part of the fabric of school life, creating a digital archive, new traditions and new marketing opportunities. This presentation highlights the staff and student outcomes that have become apparent over the course of these four years.

**Presentation Time: Wednesday 2.30-3.00 (Room 11) Strand: Innovative pedagogical practices (Non-Refereed paper)**

**The Rosetta story: the first steps into the new**

Noleine Fitzallen and Mark Prichard
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Reform in schools today is driven by governments and is focused on providing an education for students that positions them to be life-long learners, capable of being active participants in an information society, on a global scale. A reform with this intention holds the promise that Information and Communication Technologies (ICT) will play a major role in transforming education. It is important, however, to understand the changes in schools that support, facilitate, and sustain reform, as well as to consider the role of ICT in the process. The purpose of this report is to provide an example of how a Tasmanian school is working towards the implementation of a reform-based curriculum and school-wide reform. The aim of improving student outcomes through innovation has been a focus of Rosetta High School (Rosetta), and has provided some exciting experiences for students and teachers, alike. Strong leadership started and supports the process, but it is the collaborative work of teachers and the supportive school community which is building Rosetta's capacity to move towards the enactment of successful school reform efforts. The presentation will include an entertaining showcase of the work students are doing with ICT as a result of these reforms.
Concurrent session 16

So What?
Barbara Jenkins
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As more and more teachers invest the time, energy, patience and persistence required to use technology with their students, many are asking themselves and each other, “So What?” Learning outcomes for their students are not measurably improved, except perhaps, in how to use the technology. This session explores some ways in which all kinds of teachers are working together to ask the hard questions and then construct a response that utilises the power of technology to develop the Multi-literacies of their students.

These teachers are purposeful and relentless in the development of critical dialogue and thinking skills, in themselves and their students. Ideas and strategies are examined through the lens of other people's perceptions, including international literature and research. Standards of best practice are unpacked and repacked, to provide focussed feedback, expand professional aspirations and suggest a path for progression. This presentation examines some of the learning conundrums that are surfaced by an examined professional life, and many of the successful, everyday strategies developed by teachers of today's children.

IBM in the Community- K to 12 education programs
Andrew Hocking
andhock@au1.ibm.com

Through the Victorian IBM and DE&T Reinventing Education (RE) partnership program involving 25 schools over 3 years, a model for continuous improvement and whole school change in teaching and learning approaches has evolved. This presentation will articulate the Victorian RE model elements and highlight school and community based outcomes which can be adopted by other programs and initiatives.

The presentation will also feature the range of IBM K-12 education based programs which schools can engage in freely:

- IBM's On Demand Community program- placing IBM employee volunteers in schools to assist in areas such as technology planning, engineering, mathematics, IT and science career guidance and presentations, professional development for teachers and parents, etc.
- MentorPlace- IBM's online student mentoring program
- TryScience- engaging middle years students in science
- KidSmart- an Early Learning Program
- Web Adaptation Technology Software- making the web accessible for the disabled

E-learning magic with Moodle
Roland Gesthuizen
rge@westallsc.vic.edu.au

Moodle is a very powerful Intranet software system for schools. It provides a range of tools that can be used by educators to share information, e-mail and collect student work and engage in online dialogue. Moodle is free! This paper will examine some of the work conducted, during the past two years, by middle and senior students at Westall Secondary College, Victoria, with some honest feedback about what worked and how well it worked. This paper will involve a live demonstration as we try some of the online Moodle learning tools out. It will be of interest for teachers exploring remote access options for their students or e-Learning coordinators that wish to increase their background knowledge of Intranets and content management systems.
Presentation Time: Wednesday 3.30-5.00 (Room 4)  Strand: Leadership and Change Symposium

An open conversation about ICT professional learning
Debbie Kember, Michelle Williams, Janet Cochrane and Lindy McKeown
debbie.kember@qed.qld.gov.au

During this symposium, participants won’t be told what they should be doing; they’ll be part of a conversation to explore what they could be doing in leading ICT professional learning. Join colleagues from schools, districts, professional associations and tertiary institutions in a session that will generate insightful questions rather than solutions. Become part of a team that will set the agenda through an action learning process that will lead into the next ACEC Conference in Cairns 2006.

Presentation Time: Wednesday 3.30-4.00 (Room 5)  Strand: ICT in early childhood education (Non-Refereed paper)

Clay animation – new approaches to literacy
Jim Edson
jim@tsof.edu.au

Clay animation is an exciting technology that captures the imagination of students of all ages. Story telling can literally be brought to life and students will have a new zest for creating inventive stories. The tools to achieve high quality clay animation were once beyond the reach of schools but now the tools are either free or very inexpensive. This presentation will focus on the advantages that this technology has in promoting group collaboration, written and oral literacy, communication skills and much more. Clay animation can work across many curriculum areas. For example English students can work on a storyboard with conventional narratives or poems. The focus is in telling a succinct story that has a message and is engaging for an audience. In the visual arts curriculum students can create backdrops and scenery using conventional or digital art forms. In the music curriculum students can create a music piece that is evocative for the animation using either conventional music techniques or digital music making software. Students can record their music and narrations digitally using free software and inexpensive microphones.

Presentation Time: Wednesday 3.30-4.00 (Room 10)  Strand: ICT in early childhood education (Non-Refereed paper)

ICT in early childhood: Enhanced partnerships with parents = improved learning outcomes
Neil Tregenza
neilt@leadingdigital.com.au

The partnership between parents/care givers and the early childhood teacher is critical in ensuring the highest quality of early childhood education and maximising a child’s potential development.

This paper argues and demonstrates that use of ICTs can greatly enhance a child’s learning, through the hands-on use of computers and the development of a child's awareness of the use of ICT. It illustrates the vast potential to communicate information to parents that a child may not be capable of communicating. This communication can take a number of forms e.g., digital photos shown in a slideshow, videos, project documentation presented on noticeboards, portfolios, E-Books, easy to read desktop published newsletters, web pages, emails, displays or Power Point presentations. When the famous question ‘what did you do at school/preschool today?’ is asked, no longer can the child get away with ‘nothing’ as the reply. The child’s learning is extended to the home by empowering parents with information about the daily learning program.
Multicultural perspective and online learning and teaching - a case study

Hua Geng and Wing Au
hua.geng@unisa.edu.au

A multicultural perspective is a state of mind, a way of seeing and learning that is shaped by beliefs about multiculturalism, which helps teachers see that culture, race, gender, religion, socio-economic status and exceptionality, in complex ways, are potentially powerful variables in the learning process of individuals and groups and that useful ideas about teaching and living can be gained from studying the cultural systems and educational organizations of various countries as well as the various subcultures that are part of the national culture. This paper is based on the case study of David Boyd to demonstrate the relationship between multiculturalism and online learning and teaching.

Professional learning communities and PLOT

Gary Francis
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The Learning Place is Education Qld's gateway to online learning opportunities. This workshop will explore how to support networks and groups using online professional learning communities. We will also explore the ways that the Professional Learning Online Tool has helped schools align practice with emerging needs.

Making GIS achievable in the classroom

Malcolm McInerney
manning@chariot.com.au

Geographic Information System (GIS) is an exciting learning tool that is increasingly being used in classrooms across Australia. The workshop will provide the opportunity for teachers to undertake the initial stages of the GIS Skill Development course that has been developed by Geographers in South Australia and used in over 400 schools across Australia and New Zealand. The first three stages of the course will be undertaken in the workshop that will supply teachers with the awareness and initial skills to go back to their schools and get started with GIS. The workshop will also present the many resources now available to teachers that have made it increasingly easy to get started with GIS in the classroom.

Online learning with a human touch

John Travers
jtravers@adelaide.on.net

Online learning already has a significant place in tertiary education. Many schools and systems are considering its place in providing staff development and in providing programs to school students. This workshop is based on the belief that sophisticated online software can provide a rich and rewarding experience for students. The workshop will involve participants in using course material written in Jansion Toolbox, and explore the range of tools available. The workshop will address the issue of authoring online content and the considerable workload required. Workshop participants will gain an understanding of the power of online learning and of issues involved in producing online content.
Presentation Time: Wednesday 3.30-5.00 (1SoF Systems Room)  Strand: ICT in learning areas (Workshop)

Engage through engineering
Shane Singlehurst
ssingle@elizdown7.sa.edu.au

With increasing growth of control systems in industry and our every day life, the introduction of Robotics in education in schools and universities, is allowing students to embark on a journey for future development and employment prospects. The purpose of this workshop is to introduce new and experienced teachers to the concepts of engineering and programming using LEGO MINDSTORMS for SCHOOLS and ROBOLAB, an icon based programming language. Participants will get an overview of the software language and the potential of this low cost high ceiling application in education. This workshop will also show how it works effectively with both girls and boys and their different learning styles. Participants will develop a basic understanding of the RoboCUP Junior competitions currently held at both State and National level. They will work LEGO MINDSTORMS for SCHOOLS and ROBOLAB to construct and work on aspects of programming to develop control of robots. Also, they will be problem solving, will use sensors in programming, and test and run robots.
Concurrent session 17

Presentation Time: Wednesday 4.00-4.30 (Room 1)  Strand: ICT in early childhood education (Non-Refereed paper)
Primary intranet - soft toy project
Kylie Bulman and Brenton Harty
Kylie.Bulman@pegs.vic.edu.au

A traditional project is re-invented with the use of ICT. Soft Toy Projects have been used in primary schools for many years. In this version a multi-campus school uses a soft toy project at year 1 as a language, literacy and communication project involving multimedia web sites, email and cross age collaboration. Year 1 classes adopt a soft toy as a member of their class. The toy has its own web site and email address that are used to facilitate and motivate student reading and writing.

Presentation Time: Wednesday 4.00-4.30 (Room 3)  Strand: IT/Computing studies (Non-Refereed paper)
E-folio: Creating a digital information project
Peter Farrant
Peter.Farrant@pegs.vic.edu.au

This paper reports on a project at Penleigh and Essendon Grammar Schools involving the use of e-folios. Students at Penleigh and Essendon Grammar are provided with a laptop computer and each classroom is equipped with desktop computers, scanners and printers. Classroom teachers have access to digital still and movie cameras and the school is fitted with wireless technology for easy Intranet or Internet access. Staff have enthusiastically received these technologies and the problem of how to bring together all the different elements into a worthwhile project has been solved through the compilation of e-folios. An e-folio is a collection of each child’s experiences and work samples from throughout the year recorded in a variety of digital formats and then collated using web technologies. Each student creates their own web based e-folio which they layout using appropriate topic headings. All work is presented on one long web page rather than a series of pages to make the process easier to manage. The e-folios comprise digital still photos, movies, images and word processing that have been produced over three and a half terms. Each work sample has a corresponding comment or reflection by the student typed underneath. In fourth term the e-folios are completed and students finish the project by burning a CD and designing their own CD covers.

Presentation Time: Wednesday 4.00-4.30 (Room 10)  Strand: Innovative pedagogical practices (Non-Refereed paper)
Learning through ICT
Su Goddard
susan.goddard@det.wa.edu.au

This paper focuses on the impact of providing a school environment rich in information and communication technology (ICT) on the learning and teaching of students attending a newly established primary school in the suburb of Canning Vale, Western Australia.

The school's strong technology focus is based on the recognition of the potential for ICT to provide students with improved learning opportunities and acknowledges its integral role in empowering students to become independent, lifelong learners. Where possible, ICT is embedded across the curriculum in tasks which are productive and open-ended, allowing students to develop skills which support them in their learning – i.e., technology is used when and where it provides opportunities for improved learning. This paper will not only outline both whole school management and leadership in ICT implementation, but will demonstrate exemplary practice in the integration of ICT for teaching and learning, monitoring and assessment, as well as strategies for effective e-business.
E-learning in ICT skills
Tony Webster
twebster@websterpublishing.com

This paper will present an online ICT skills educational website and show the many different e-Learning concepts available including both ICT-based online learning and testing.
### Concurrent session 18

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<th>Presentation Time: Wednesday 4.30-5.00 (Hall E)</th>
<th>Strand: Innovative pedagogical practices (Non-Refereed paper)</th>
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<tr>
<td><strong>KidiPads Interactive Performance System: an overview</strong></td>
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<tr>
<td>Jim Edson</td>
<td><a href="mailto:jim@tsof.edu.au">jim@tsof.edu.au</a></td>
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This presentation will focus on new ways for students to engage with interactive, multimedia technologies using the KidiPads system. This system places students in a 3D play environment where they can explore musical concepts, soundscape and storytelling while working in collaborative groups.

The presentation highlights how the KidiPads system allows performers to trigger musical notes and sounds by stepping on "Touch Pads" and how it teaches many musical concepts such as pitch, timbre, rhythm, harmony and melody. The touch pads can also control a PowerPoint presentation that can incorporate pictures, text, movies and sounds.

Performing arts curriculum areas have their strengths in developing self confidence and creativity. Adding exciting new technologies to the equation really enhances the learning area and creates new opportunities for self expression. The KidiPads system is designed for use by young children and students with disabilities where the focus is not on the fine motor mouse control of using a computer but on the whole body movement aspects that suits this target student group.

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<td><strong>Hypermedia and PowerPoint: Developing critical literacy skills</strong></td>
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<td>Jim Sprialis</td>
<td><a href="mailto:jim.sprialis@madisonps.sa.edu.au">jim.sprialis@madisonps.sa.edu.au</a></td>
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This paper will discuss the possibilities and potential of PowerPoint in the creation of hypermedia presentations. Hypermedia authoring combines the use of hypertext and multimedia to produce an interactive non-linear media experience for a given audience.

Hypermedia composition involves an understanding of hypertext literacy and this form of literacy gives authors a powerful and creative means of conveying their ideas. An early introduction to the use of hypermedia literacy can foster critical literacy skills.

The process of becoming hypermedia literate includes negotiating specific genres and cueing systems. The hypermedia author is also developing the critical literacy skills to interchange genres to represent and communicate their ideas.

This paper will present some student PowerPoint samples in a wide range of genres and delegates are guaranteed to come away with a host of ideas that encourage higher order thinking.

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<tr>
<th>Presentation Time: Wednesday 4.30-5.00 (Room 3)</th>
<th>Strand: ICT in early childhood education (Non-Refereed paper)</th>
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<td><strong>Children of the New Millennium: Using ICT Research Project</strong></td>
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<tr>
<td>Sharon Arney and Susan Hill</td>
<td><a href="mailto:sharon@tsof.edu.au">sharon@tsof.edu.au</a></td>
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The project was a joint initiative between the University of South Australia, Department of Education & Children's Services and the Australian Research Council. Through teacher - researchers it explored how children were using ICT from preschool to the second year of school.

Through the project teacher - researchers were able to develop a framework which extends the way ICT is able to enhance young children's learning.

This presentation will be snapshots of learning from the Research Project.
Presentation Time: Wednesday 4.30-5.00 (Room 5) Strand: Virtual learning communities (Non-Refereed paper)

ICTs and literacies Project: From personal to shared vision; a professional learning model of a community of practice
Anne De Nicolo, Rob Burns
anne.denicolo@ceo.adl.catholic.edu.au

This collaborative learning model was embedded in a literacy project facilitated by a literacy consultant from Catholic Education South Australia. Teachers from two Catholic primary schools had expressed an interest in increasing their understanding of ICTs and literacies. Based on a professional learning model the project was designed to assist participating teachers integrate the use of ICTs in literacy teaching and learning. The creation of a learning community was enhanced by a clear focus on one domain and guidance from the Literacy Consultant as a mentor. Teachers were supported to critically reflect on their existing practice, and were encouraged to share new ideas with their peers. A blended model of delivery was used, the first interaction was face-to-face, followed by opportunities to communicate electronically with the community. The blend of both formal and informal learning opportunities has sustained this model of organisational learning. The formal component of the project ran for two school terms, but interest and involvement in this learning community has continued past this time. This was the first time that this model of an online learning community was created as part of a professional development program facilitated by Catholic Education South Australia.

Presentation Time: Wednesday 4.30-5.00 (Room 10) Strand: ICT in early childhood education (Non-Refereed paper)

"Can I hear what I wrote, AGAIN?"
Lynda Rifai
lrifai@jpc.qld.edu.au

Looking for a great visual way to develop language skills in young students?
This paper will discuss and illustrate how young children can be taught language skills, sentence building and fluency using Clicker4. Further, it will be demonstrated that this resource also has great potential for students with special needs and for ESL students.
Various features will be discussed including: teachers making their own grids to suit individual students; choosing from a wide range of already made grids; the "talk back" factor of the program, which allows students to hear what they have written; and students using their "talking" finger to hear individual words.

Presentation Time: Wednesday 4.30-5.00 (Room 11) Strand: E-learning (Refereed paper)

Options in learning management systems software: Approaches to research, recognising what people can do that computers can’t
Kathryn Moyle
moyle.kathryn@saugov.sau.gov.au

Research is a fundamental part of education. Researching online learning environments is informing the work of schools and school education jurisdictions. It is argued in this paper that using approaches to research that recognise the place people hold in school education and technology research helps inform the methods of the research conducted. Technological determinism has tended to imbue the language of school education technology policies. This has seen the power and control humans can exercise over approaches to school education research and policy-making, removed. As there has been considerable work already conducted on the technical aspects of learning management systems software, this paper focuses on putting humans back into the research picture by recognising what people can do that computers can’t.
What students want- what schools need: Teaching with technology in the 21st century
Dale Spender

Who are the end users of the new technologies in the classroom? Teachers or students?
There could not be two more different groups, with different needs and interests – and different levels of digital competency – but so far, the discussion of teaching with technology, has focused on the teachers.
Yet when students are asked what they want, and what technology in the classroom is for, their answers can confound the 'received wisdom' of teachers and technologists. This paper focuses on what students say they want – and what the schools need -- for teaching with technology in the 21st century.
Concurrent session 19

The Australian Internet: Past, Present and Future
Simon Hackett
simon@internode.com.au

The Internet is a global 'overnight success' that has grown and developed for more than 30 years. This presentation will briefly examine the growth of the Internet in Australia, and take a look at the key drivers present within the Internet space today, including broadband. We'll then gaze into the crystal ball, to take a look at where the Internet may take us in next 3-5 years - and what impacts this may have for our professional and personal lives.

Online learning: A snapshot
Yvonne Murtagh
Murtagh.Yvonne@saugov.sa.gov.au

This paper provides a snapshot of what is happening in online learning, including professional development, trialling the use of learning objects in schools, content assembly and delivery options and experiences as a facilitator and participant in an online learning environment.

E-learning in encyclopaedia databases
Tony Webster
twebster@websterpublishing.com

This workshop will present an online encyclopaedia website and show how e-Learning concepts, such as video, animations, animal interactions and multi-choice quizzes, can turn text-based encyclopaedias into online interactive e-Learning objects.

Designing inclusive curriculum: Engaging girls with science, engineering and technology using robotics - a literature review
Gillian Edmiston
combray@optusnet.com.au

This paper presents the findings of a literature review conducted as part of a masters degree research project that explored girl's experiences during implementation of a carefully designed LEGO Robotics project in a mixed gender, multi-age classroom. The literature review was motivated by an interest in exploring ways to engage girls with Science, Engineering and Technology (SET), coupled with an interest in constructivist pedagogy and the effective use of technology in the primary and middle school classroom. An overview of current research findings regarding girls' non-participation rates in maths, science, engineering and technology, both internationally and within Australia is provided. Reviews of the literature are then presented in each of the following key areas: (i) Factors contributing to girls' non-participation in science, engineering and technology (SET); (ii) effective curriculum design – Information Communication Technology (ICT) mediated constructivist learning approaches; and (iii) the use of LEGO robotics in the classroom environment. A summary draws these areas together and implications for classroom practitioners and researchers are discussed.
Building a computer-supported classroom learning environment for teaching and learning puberty: An inquiry approach
Winnie Wing-mui So and Siu-cheung Kong
wso@ied.edu.hk

This research focuses on building a computer-supported learning environment for fostering inquiry learning process, which is an essential quality of life-long learners. This research discusses how computer-mediated learning resources are designed and implemented for supporting inquiry learning of primary school children to have better understanding of puberty - a core element in the Health and Living Strand of General Studies in the Hong Kong primary curriculum. The computer-mediated learning resources include virtual devices and case studies. The various virtual devices of balance, meter rule, magnifying lens, and x-ray machine helped learners look into the body changes and sexual development during puberty, as well as reproductive anatomy. The case studies provide situations of harassment and questions early adolescents may encounter. Teachers can guide pupils to work individually or in groups to search for supporting information from the virtual devices for making wise choices. Hence, the learning resources serve to support teachers to provide a computer-supported classroom learning environment for inquiry learning of puberty.

Critical thinking skills and academic achievement among student teachers in computer programming
Elsa Mentz
snsem@puk.ac.za

Although critical thinking theory can be traced back to Bloom’s taxonomy of learning objectives, modern day scholars have a variety of definitions for the concept. The National Council for Excellence in Critical Thinking provides a detailed description of the concept, but sees critical thinking as having two components, namely a) a set of information and belief generating and processing skills and b) the habit of using those skills to guide behaviour. Improving the learning and practice of computer programming has been identified internationally as a key issue in Computer Science Education. Programming requires abilities beyond mere command of the syntax and semantics of a programming language. It requires different higher order thinking skills. The question that guides this research is whether a relation exists between the academic achievement and the critical thinking skills of third and fourth year student teachers in computer programming. The instrument to be used is the Actively-Openminded Thinking Composite scale (AOT), together with the marks obtained for the subject: Computer programming. The hypothesis is that there is a positive correlation between academic achievement and critical thinking skills. Addressing critical thinking skills in instruction of computer programming, might result in improved performance among student teachers in computer programming.

Weaving the teaching and learning threads together using ICT
David Horsell
dhorsell@hendonps.sa.edu.au

Schools are spending big dollars on ICTs to transform teaching and learning. We constantly question whether we are simply doing things differently without the improvements to teaching and learning that would justify the cost. School priorities and student motivators constantly change and performance and accountability expectations grow with teachers wondering how they will weave all these threads together. This presentation provides an overview of our experience at Hendon Primary School with strategies that embed ICTs in learning programs focused on school priorities aimed at developing literacy, numeracy and thinking skills through the creative use of software readily available across the school. These learning programs are planned through a school developed database tool that links the curriculum framework with our school priorities. Teaching strategies are supported by staff professional development delivered through our school intranet that links our school-based ICT scope and sequence continuum with appropriate ICT applications, teaching strategies and learning activities.
Yes, you can use MS Word and Excel in your classroom!
Donna Gronn
d.gronn@patrick.acu.edu.au

There are a huge range of mathematics outcomes that can be enhanced by the use of these simple programs. This workshop will look at the drawing tools and tables in Word, and the data collection and graphing capabilities of Excel, and how they can be used effectively in mathematics classrooms. In particular, this workshop will examine the creation of multiple aids for the teaching of mathematics; and topics covered will include: Morphing shape, tangrams, tessellations, creation of number charts, calendars and games with related on and off computer activities.

Embedding EdNA services in your website
Kerrie Smith
ksmith@educationau.edu.au

In the last year EdNA Online has developed a number of services that can value add to your website whether you are an education department, educational organisation, school or teacher. These services utilise RSS technology, and include news feeds, noticeboards, information about recent additions to EdNA Online, and searches of the EdNA Online database. This hands-on workshop will introduce participants to the tools that EdNA developers have created for embedding EdNA RSS feeds into html documents. The presenter is the Schools Information Officer for EdNA Online.

Actively engaging students in learning
Sally Bateman and David Banks
sally.bateman@keepad.com

This workshop is intended for educators with an interest in involving and engaging their students in a face-to-face classroom/lecture environment. Basic computing skills are all that are required to participate in this hands-on workshop. In this session participants will learn first-hand how interactive keypads are being used as a teaching and learning tool, enabling educators to engage and involve students and receive real-time feedback. Research has shown the benefits of utilising interactive keypads in education include; encouraging participation, improving understanding, increasing retention and adding excitement and enthusiasm to traditional education and training methods. Use of the system also creates opportunities to quickly check student understanding. It has been suggested that KEEpad is a tool that may allow educators to actively engage all their students in the learning process. It consists of facilities that enable teachers to ask multiple-choice questions during their classes, and have every student respond, anonymously if preferred. The responses are collated by the software and are available immediately for graphical display, while also being stored for later use. The software comes with a range of class and individual student reports that can be produced at the conclusion of a lesson.
Concurrent session 20

**Presentation Time:** Thursday 11.30-12.00 (Room 1)  
**Strand:** ICT in learning areas Non-Refereed paper

**Integrating curriculum in the middle years using online problem based collaborative learning**

Mike Roach  
mroach@hamcoll.sa.edu.au

This paper will examine how problem-based learning can be integrated into a curriculum for middle school using the Internet. This will be followed by a discussion of the quality online collaborative programs that enable teachers to take a constructivist approach as they guide their students in solving real life and relevant problems with students from classroom around the world. The paper will also report on four projects that year 8 and 9 students have successfully engaged in and be shown how the integration of curriculum areas can be easily be achieved by involvement in quality projects of this type.

**Presentation Time:** Thursday 11.30-12.00 (Room 4)  
**Strand:** Innovative pedagogical practices (Non-Refereed paper)

**Supporting students with disabilities and learning difficulties through the use of ICT: A statewide perspective**

Alister Davies  
daviesa@seru.sa.edu.au

This presentation will raise awareness of disability related issues that can be resolved or assisted through the application of ICTs. It will promote the statewide service delivery provided by the Special Education Resource Unit and SERU website. The presentation aims to broaden the understanding of attendees in the range of ICTs that can be used to cater for specific learning needs of students.

**Presentation Time:** Thursday 11.30-12.00 (Room 5)  
**Strand:** Innovative pedagogical practices (Non-Refereed paper)

**Study Group on Educational Informatics of the State College of Paraná. Curitiba - Paraná - Brazil**

Fabiana Orreda  
fabiana_orreda@ufpr.br

The Study Group on Educational Informatics ("Grupo de Estudos em Informática Educativa (GEINFE-CEP)"), first in its genre in the state of Paraná, Brazil, develops studies on new teaching technologies and aims to start a new paradigm in educational computing and other technologies. GEINFE-CEP is lead by the teacher of the State College of Paraná ("Colégio Estadual do Paraná") and among other efforts promotes the improvement of teachers by continuous discussions about the praxis of the use of new technologies in the teaching-learning process and the production of knowledge with collaborative characteristics, according to the pedagogic project and education concept of this College. The researching method developed by the teachers has as its main objective the development of Pedagogic Design Models for creating pedagogical projects for the use of new technologies. The themes of each line of research involve studying and discussion of theoretical models that establish the researches of the group for the production of didactic methodologies and materials; new technologies upgrade through the studying of technologic tools; distant teaching techniques and methods; material produced by the groups of researching presentations, discussions and testing with students.
Virtual China Tour Adjunct
Brenton Harty
ITManager@pegs.vic.edu.au

The Virtual China Tour is a cross year level, cross faculty web-based project, based around an annual Yr 11 student tour of China. The web site combines the efforts of art graphics; music and information technology classes to produce a virtual China tour web site. The site features materials that are collected by teachers and Year 11 students during the three-week study tour including mock VCE examination interviews with students at our sister school in Shanghai. We use QuickTime streaming to efficiently deliver AV materials to both our LAN and dialup users. The site is a resource used by students from all parts of our school. This paper looks at how the project has advanced and the changes made during its first 4 years.

Helping teachers successfully use e-learning environments
Sue Trinidad
sue@cite.hku.hk

Teaching and learning does not improve as a result of ICT alone; it is improved when it is grounded in practical learning theory. By critically evaluating the teaching and learning environment when using e-learning, and assessing the impact on students’ attitudes towards learning and computer usage, this paper reports on how learning environment research tools such as the Online Learning Environment Survey or OLES can help evaluate the effectiveness of the e-learning environment. Educators can use such tools to discover differences between their perceptions and those of their students and then attempt to make improvements based upon their students’ perceptions. Adjustments can then be made accordingly to improve or adjust the learning environment to enhance learning outcomes.
Concurrent session 21

Developing new post-compulsory courses: Applied information technology and computer science
Paul Newhouse
p.newhouse@ecu.edu.au

In the wake of the post-compulsory review in Western Australia two new courses of study are being developed for Years 11 and 12: Applied Information Technology and Computer Science. This has given a unique opportunity to address emerging issues from the very successful existing subjects and to ensure they are best configured to match the needs of students and changes in school environments. At the same time it has provided a forum within which to re-explore the place of ICT in Technology Education and the relationship of learning outcomes to study in ICT. There are some profound changes evident in these courses compared with what we have done in the past. It is important that we get these changes right at these early stages to successfully migrate all teachers and students to the new courses later in the decade. This paper presents information on the current drafts of the courses and discusses the issues addressed in writing the courses.

Curricular implementation of ICT as a social process: Quest Atlantis in Australia
Margaret Lloyd
mm.lloyd@qut.edu.au

This paper will present observations of the social interactions within an ongoing longitudinal investigation of the Australian implementation of Quest Atlantis, a multi-user three-dimensional (3D) online learning environment being developed at Indiana University. Specific social interactions will be described and an argument sustained that the curricular implementation of ICT is a social as well as technical and logistical process. The focus of the study, which was conducted in 2003 and described in part in this paper, was on the affective changes to teachers’ actions as they engaged with the curricular, technical and cultural dimensions of the implementation. The RITE Group (Research in Information Technology Education) based at the Queensland University of Technology and which oversees the Oz Teacher-Net took responsibility for hosting and supporting an Australian reference group as they dealt with the implementation in their differing educational settings. More information about Quest Atlantis can be found on its web site, http://atlantis.crlt.indiana.edu. Specific information on the Australian implementation can be found at http://perch.ed.qut.edu.au/quest_atlantis_australia/ or by following the links from the Oz Teacher-Net home page http://rite.ed.qut.edu.au/oz-teachernet/. The study described in this paper was funded through a QUT Research Grant.

Changing classroom practice
Colin Luscombe
cluscomb@colgednps.sa.edu.au

This paper will look at two initiatives at Colonel Light Gardens Primary School which use ICT to improve communication, assessment and information to parents, and to encourage and support constructivist practices in the classroom. Student online e-folios began in 2003, and the 2004 laptop project of ten laptops in classrooms will be described.
Presentation Time: Thursday 12.00-12.30 (Room 4)  
Strand: Inclusivity and equity (Non-Refereed paper)

Accomplishing new literate practices: Students with disabilities rewrite the story  
Cherie Pickering  
cheriep@forbesps.sa.edu.au

This paper relates a teacher's story about a classroom-based research project undertaken with a Year 3 – 7 Special Area Resource class, located in a Mainstream Primary School in the south west of Adelaide. The class consisted of 11 students verified as students with disabilities under the DECS disability criteria. The students’ age range (from 8 – 13), variations in physical growth and development, different experiences, intellectual abilities and disabilities make co-teaching this group a challenging undertaking. Another difficulty faced involved establishing a sense of cohesion amongst this group who are taxied daily to and from the class from a number of suburbs. Despite these differences, the students shared an interest in popular culture. This opened an opportunity to engage them in the literate work of the classroom through the use of media along with information and communication technologies (ICTs).

Presentation Time: Thursday 12.00-12.30 (Room 5)  
Strand: Virtual learning communities (Non-Refereed paper)

The Jason project: Rainforests at the crossroads  
Bob Bowden  
bbowden@wbeachps.sa.edu.au

This paper presents the report on the JASON project that engages students and teachers in an exciting journey of discovery to explore the Isthmus of Panama region and its fascinating tropical rainforests. Students across Australia explored the unique role that the Isthmus of Panama and tropical rainforests play in furthering our global understanding of the interchange between Earth’s dynamic systems. JASON XV focused on the research, monitoring, and management of this region to better understand how it functions and how it has changed through time.

Presentation Time: Thursday 12.00-12.30 (Room 11)  
Strand: E-learning (Non-Refereed paper)

Virtual Schooling: current and emerging issues  
Mick Chalmers  
mick.chalmers@education.tas.gov.au

Virtual Schooling, in its many guises, is rapidly becoming a mainstream approach in many jurisdictions. This forum is for those interested in the future of virtual schooling, and will focus on the current and emerging issues in the delivery, organisation, support and role of virtual schooling. The presenter will outline some innovative examples from Tasmania, including online programs for gifted and talented students, athlete development, and a cluster-based model to support curriculum enrichment.
Concurrent session 22

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<td><strong>Having fun in the classroom</strong></td>
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<tr>
<td>Greg Gebhart</td>
<td><a href="mailto:greg.gebhart@lowanna.vic.edu.au">greg.gebhart@lowanna.vic.edu.au</a></td>
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Multimedia brings out the creativity in students. This paper will showcase a wide range of student productions using software including PowerPoint, Windows Movie Maker, Photoshop, Fireworks, Dreamweaver and Flash. The projects described in this paper are suitable from upper primary through to senior secondary, and these projects are creative, innovative and fun for the students.

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<th>Presentation Time: Thursday 1.30-2.00 (Room 1)</th>
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<td><strong>E-learning in a war zone: NESA Virtual School</strong></td>
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<td>David Stubbs</td>
<td><a href="mailto:dstubbs@asqatar.org">dstubbs@asqatar.org</a></td>
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This paper reports on the Near East South Asia (NESA) Virtual School, its operations and some of the issues encountered. After school closures caused by terrorist attacks in Pakistan and India and the war in Iraq, NESA Virtual School (NVS) was setup as a result of collaboration between Near East South Asia Council of Overseas Schools and the US Department of State. The original intention of NVS was to ensure that in the event of future school closures, the education of the students could continue. Even without school closure, NVS shows much promise as a tool to enhance the education of the students due to sharing of resources and other features of the web-based software, such as External Links and Discussion Boards. Strong administrative support is required in order to create virtual classrooms for each teacher and to enrol all students in the virtual school. However the benefits of going virtual outweigh the extra effort required.

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<th>Presentation Time: Thursday 1.30-2.00 (Room 3)</th>
<th>Strand: E-learning (Refereed paper)</th>
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<td><strong>Online projects: what’s so remarkable - students’ experiences of an online project in NSW schools</strong></td>
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<tr>
<td>Susan Harriman</td>
<td><a href="mailto:susan.harriman@tpg.com.au">susan.harriman@tpg.com.au</a></td>
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Connection to the Internet is a major priority for NSW government schools, with the expectation that students will increasingly participate in online learning activities. ‘Online projects’ have emerged as a new learning form, building on non-computer problem-based learning approaches. They aim to create learning environments that are student-centred and interdisciplinary, where students engage in longer-term, complex assignments linked to the world outside school, and that capitalise on the information and communications facilities of the Internet.

Recent studies of online learning projects have been characterised by an ‘overview’ approach, mapping the occurrence and nature of projects or documenting individual cases, with an emphasis on implementation issues for teachers and suggestions for their successful operation. The benefits of participation are often celebrated, with little evidence provided of actual learning outcomes for students.

This paper identifies the claims of project providers and advocates. It draws on a study of four very different online projects, implemented in schools in NSW, where the purported benefits were explored through in-depth case studies, using multi-faceted sources of data. Some initial findings of the study are presented, highlighting the experiences and learning of students, with implications for project design and provision.
### Presentation Time: Thursday 1.30-2.00 (Room 4)  
**Strand: Networks and Infrastructures (Non-Refereed paper)**

**Does open-source software have a place in Australian schools?**  
Kathryn Moyle  
moyle.kathryn@saugov.sa.gov.au

The question of whether open source software has a place in Australian schools is an urgent one nationally. Schools and school systems are concerned about the recurrent costs of proprietary software licences. Using data drawn from a national research project conducted by the South Australian Department of Education in 2004 about the potential use of open source software in schools, this paper outlines some of the research undertaken that specifically addressed two of the research questions: (i) What are the models and their underlying assumptions for identifying total cost of ownership for using open source software operating systems and applications within Australian and New Zealand schools? and (ii) What are the components for determining total cost of ownership of open source software that could be used within school sectors and systems compared to existing products? Against the backdrop of European experiences, this paper outlines the findings concerning these two questions.

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### Presentation Time: Thursday 1.30-2.00 (Room 5)  
**Strand: Inclusivity and equity (Non-Refereed paper)**

**Consistency of teacher judgement – it’s a bit tricky in a small school.**  
Vicki Lowery  
Vicki.Lowery@det.nsw.edu.au

Teachers in small, rural schools do not have easy access to colleagues with whom they can discuss teaching strategies and their students’ learning. Isolation does not need to prevent teachers communicating with one another and sharing knowledge, ideas and concerns. An online learning community can provide a forum in which teachers can ‘meet’ colleagues, discuss topics of common interest and concern and voice opinions. It can even provide a ‘virtual staffroom’. This can be especially valuable when teachers need to work cooperatively to achieve consistency of teacher judgment in their assessment of student work. This paper will discuss Consistent Teacher Judgment (CTJ) Online, a project which is part of the Australian Government Quality Teacher Program (AGQTP) and which aims to provide professional development for teachers in small, isolated schools to assist them in achieving consistency of judgement of their students’ work.

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### Presentation Time: Thursday 1.30-2.00 (Room 10)  
**Strand: Innovative pedagogical practices (Non-Refereed paper)**

**E-teaching and interactive whiteboards: Technology used to enhance effective pedagogy - creating a significant impact on classroom practice and student learning**  
Peter Kent  
peter.kent@richardsonps.act.edu.au

This paper examines the changes to pedagogy that took place at Richardson Primary School (ACT, Australia) associated with the introduction of interactive whiteboards. ‘e-Teaching’, a new pedagogical framework has evolved as part of this process. ‘e-Teaching’ is manifestly different to the traditional pedagogies that involve information and communication technologies, in that its major focus is to enhance the ‘teaching’ component of the pre-existing ‘teaching and learning’ process. Current, successful teaching methods are used as the basis for integrating the technology rather than using a curriculum area, hardware or particular software package to drive the integration. It will be shown that the mix of interactive whiteboards and the focus on pre-existing pedagogies has resulted in significant improvements in the teaching and learning environment at Richardson Primary including student outcomes.
This forum is aimed at bringing together teachers and others with an interest in the IT/Computing subject area. It will allow an interchange of ideas on the directions being taken in each State or Territory, with a particular focus on how to manage the issues arising. These issues could include the role parameters of IT teachers, strategies for promoting core aspects of the IT discipline within an integrated curriculum, centralised vs decentralised IT curriculum, and the management of IT-based studies in the arts, sciences and general studies.

NCF44 Interactive Distance Learning: Distance education via videoconferencing
Jason Motbey
jmotbey@ntoec.nt.edu.au

At the start of 2002, the Northern Territory Department of Employment, Education and Training (NTDEET), the New South Wales Department of Education and Training (NSWDET) and Optus formed a consortium to seek funding from the National Communications Fund (NCF) for a satellite-based videoconferencing project. This project, called Interactive Distance Learning (IDL), involved the construction of five studios and the installation of over 500 client sites in remote areas through the Northern Territory and western New South Wales. The poster will explain how the system works, what it can do, and showcases some of the teaching that has been taking place.

Developing criteria-based assessment rubrics
Michael Shaw
mshaw@woodcrofps.sa.edu.au

Participants will briefly explore the purpose for rubrics as an assessment tool and look at several examples. They will then access the Internet to use Rubistar to develop a rubric, which they can then complete at a later date or have their students develop themselves. RubiStar is a free online tool to help the teacher who wants to use and develop quality rubrics but does not have the time to develop them from scratch.
Concurrent session 23

**Presentation Time: Thursday 2.00-2.30 (Hall E) Strand: Leadership and Change (Non-Refereed paper)**

**Changing landscapes, content, technologies: What is the optimal pathway ahead for technology education in professionally focused university programs?**

Larry Vint  
L.Vint@griffith.edu.au  

Technology has infiltrated every university program, which has created significant implications for educators, students and industry. The role of a university is to provide a platform for thought and progressive direction for industry and design students, to ensure their needs are realised to meet today’s workplace challenges. Our graduates need to effectively communicate their ideas and concepts to clients or colleagues so that they are heard above the cacophony of images and messages out in the market place. The use of leading-edge visualisation and special effects technology can significantly enhance communication capabilities. Regardless of the technology used, the ultimate success of any effective teaching and learning environment is to provide a rich learning experience where content is delivered in an exciting way and students are fully engaged. This paper will explore the scope of cutting-edge technology education. It will discuss the interactive technologies that give us rich sensory experiences, the recent developments in the creative industries, and their utilisation, affordability and effectiveness in the university environment. Practical examples of flythrough animation, virtual reality scenes, 3D web interactivity and visualisation will be presented. The presentation will also highlight future trends in the development of these technologies and discuss the implications for universities.

**Presentation Time: Thursday 2.00-3.00 (Room 3) Strand: IT/Computing studies (Non-Refereed paper)**

**Adobe Acrobat Professional – PDF and file submission**

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Adobe Acrobat can assist communication between teachers, students and the school. Maintaining the visual integrity and security of digital documents can be a challenge, as submitting native files allows for reformatting and plagiarism of information. The problem is compounded by platform changes and networks being slowed due to the size of files being transferred. Adobe PDF offers a secure, concise format for online file submitting. This presentation will focus on how to make and secure a perfect PDF from any application. We’ll explore the ways Adobe PDF and Acrobat can enhance digital information while reducing file size and maintaining the intent of the document.
The costs, benefits and risks of open-source software: A view from the chalk-face
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Software can be considered to be part of a school's infrastructure, as a tool to improve productivity or to aid thinking. An increasing number of open source applications of each type are becoming available for use in schools. At SCEGGS Darlinghurst, a K-12 Girls' School in Sydney, open-source software that fits into all three classifications, is currently in use by staff and students. All software has costs, benefits and risks. SCEGGS' experience is that open-source software stacks up well against, and beside, closed-source software and that many of the perceived negatives of open source software can legitimately be viewed as strengths. The process of implementing open-source software at SCEGGS has been evolutionary, rather than revolutionary, with open source alternatives fitting into niches where, at the time, no closed source alternative existed. Open-source software should always be evaluated and considered for schools' ICT needs; weigh up the costs, benefits and risks. This paper reports the experience of the adoption of open-source software at SCEGGS Darlinghurst.

Multi-Media integrate and innovate
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Learning objects, video, claymation, digitised programmes - these are some of the tools that are being integrated into Kristin Schools Middle Years ICT program. This presentation looks at how some simple techniques and tools are making a difference to the classroom teacher.

Making the most of I.T. - using faculty-based websites to build learning communities at senior secondary level
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This paper reports on the action research findings at the Open Access College involving the use of faculty-based websites to build learning communities at the senior secondary level. Senior secondary teachers at Open Access College have been exploring various technologies and techniques to provide more flexible ways of communicating with students. Several subject areas now have websites (currently through WebCT) providing current resources, learning objects and communication activities. This initiative has stimulated considerable debate concerning strategies required to attract regular and productive student use of these resource banks. The value of online communication to distance education methodology has also been a focus of attention given that most communication between teachers and students is essentially teacher centred. During 2004, a group of teachers with the support of a ‘mentor’, used action research to analyse student involvement in subject websites with the intention of formulating strategies to increase student access to online environments. The group also evaluated the capacity of asynchronous discussion to facilitate collaborative opportunities for students to share opinions and engage in higher order analysis of issues. The research outcomes resulted in the availability of resources for teachers intending to develop a web presence. Findings concerning asynchronous discussion have improved the profile of this methodology amongst teachers. The 2005 formation of a Student Support Portal for all senior secondary students will be shaped by the research outcomes.
Concurrent session 24

The culture of information usage, plagiarism and the emerging net generation
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The Internet is now over twenty years old and has always incorporated a number of different facilities such as Telnet, Usenet and email. Initially the Internet was the province of academics who used it as a way of sharing information for research purposes. However with the advent of the World Wide Web and the development of user-friendly software, access to the facilities afforded by the Internet became accessible to a wider audience that had/hass little or no technical expertise. It is the Web and its current user-friendly nature that users equate with the term Internet or Net. A direct result of these developments has been a shift in the type of user and the culture of information usage. The user-friendly Web has turned the Internet into a global resource that is being used as a major resource in educational institutions, corporate organizations and the marketplace. We have an emerging ‘Net Generation’ of students for whom instantaneous telecommunications and access to information have always been a part of their everyday lives. This paper explores the connections between early use of the Internet, academic protocols and the rise of an emerging culture of plagiarism amongst the ‘Net Generation’.

Realising the potential of computers in the classroom: Teacher scaffolding strategies for supporting children working with computers
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How can teachers support children working with computers on authentic tasks? This study was an investigation into the support strategies used by a primary school teacher considered to be exemplary in integrating computers in her classroom. This paper discusses the task that was set by the teacher for the students, the children’s progression through the task and the teaching strategies used. In particular, it sought out instances of teacher “scaffolding” as a strategy for supporting children working with computers.

Satellite connectivity - changing the nature of education in a semi-rural school
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The installation of two-way satellite at Tatachilla Lutheran College, in the wine growing district of McLaren Vale in South Australia, has enabled the school not only to have broadband connectivity but has enabled the school to provide wireless broadband access to local businesses and potentially to local home users. This onselling of broadband access assists in funding the technology within the college. This paper will look at the benefits and outcomes of this project and will outline future developments that will benefit not only the school but also the community.
E-Library interactive learning site
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Take a guided tour through Swallowcliffe Schools E-Library interactive learning site. This site contains an E-Literacy section as well as an E-Book section.
The E-Literacy site has been designed to enhance students’ learning of literacy skills by using the Alphabet, Salisbury sight words, and Dolch sight word/letter sounds.
The E-Book concept is designed for varying reading levels of students, as well as an Indigenous story site. All story content within this site has been produced by the students of Swallowcliffe Schools.
The use of Flash animation in the construction of these sites enables students to link visual with audio to enhance student learning. The E-Library compliments the efforts of time-restricted teachers in developing literacy skills through incorporating ICT in their learning program. The site is visually easy to navigate which enables all students, including those with intellectual and neurological disabilities, ease of access.

Making the technology problematic: Applying the main contribution of human computer interaction theory to technologies for teachers
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ICT is a constantly, even rapidly, changing range of tools that we can utilise to enhance our teaching. The arrival of convertible notebook computers extends this range significantly, in that it brings together the size, storage and power of laptops and the pen interface of handhelds - without sacrificing the laptop's keyboarding facility. Such technology potentially offers a number of opportunities for dealing with the immediate and ongoing issue of teacher resistance to implementing ICT in schools - by providing a more convenient tool that expands the opportunities for implementing ICT as a teaching resource, and a more familiar tool that encourages teacher engagement with - perhaps even enjoyment of - the tool itself. This paper lays the foundation for the development of a preliminary action research project on teacher use of convertible notebooks, which in turn is part of a much larger work that is developing a process for evaluating ICT implementations in schools for educational efficacy.
Teaching, Learning and Technology: Research, Reform, Realise the Potential
Dr Geoff Romeo

After more than two decades of information and communication technologies in schools, the ‘computers in education’ movement is at a crossroad, maybe even a crisis. There is still confusion about why the technology matters, widespread reluctance to move beyond the tokenistic use of computers in the classroom, and mixed messages about the potential of the technology. There is a real danger that the hard work of the last two decades and could well be usurped by the networked world of online teaching, learning objects and learning management systems.

This paper, with an eye on the past, is an exploration of likely educational technology futures. The exploration of these futures helps us to explore the issues, acknowledge the realities, and reach a consensus about how technology will be organised and for what purposes.

It begins by focusing on what the research is telling us about what we now know about good teaching and learning, discussing what might need reforming and reflecting on how the potential of technology in education might be realised.