Abstracts of Papers

Abstracts of all papers appear as per the conference programme

Monday 19 October 2015

<table>
<thead>
<tr>
<th>Venue</th>
<th>Monday 19 October</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16:30 - 18:30</td>
</tr>
<tr>
<td></td>
<td>Plenary 1: Opening &amp; Keynote 1</td>
</tr>
</tbody>
</table>
| 42nd Street Theater | Keynote address: Mobile Learning: The Game Designer's Perspective  
Ernest Adams  
The ubiquity of mobile devices has made mobile learning a hot topic in the past few years. There will naturally be a strong temptation to “gamify” educational products, but the educational software industry's record on incorporating game-like features into education has been a spotty one. Ernest Adams addresses some of the pitfalls and the opportunities provided by these new platforms. |

Tuesday 20 October 2015

<table>
<thead>
<tr>
<th>Venue</th>
<th>Tuesday 20 October</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09:00 - 10:30</td>
</tr>
<tr>
<td></td>
<td>Parallel 1</td>
</tr>
</tbody>
</table>
| CC Room A     | Theme: Innovations in technology for mobile learning  
Chair: Rob Power  
Paper 1:  
Infinite possibilities for using eyetracking for mobile serious games in order to improve user learning experiences  
Seugnet Blignaut  
Serious games have, to some degree, relocated from desktops to palmtops. Developers of serious games employ eyetracking as part of their evaluation of user learning experiences on an array of devices. Those who do not use eyetracking for usability evaluation agree that it seems a good idea. This paper provides an initial analysis of literature findings selected according to stringent search criteria to contribute towards a conceptual framework for the use of eyetracking for serious games to improve user learning experiences. Electronic articles were analyzed of which (i) the time span was 1999-2015; (ii) the document type was articles in journals; (iii) the keywords for searches were “eye tracking AND serious games” and some permutations thereof; and (iv) the articles spanned all disciplines. The qualitative analysis of the six identified articles rendered an unexpected large number of 34 findings suited to compilation of the conceptual framework. The findings grouped as six themes; three relating to user learning aspects during gameplay and three relating to eyetracking measures. |
|               | Paper 2:  
A mobile game world for Māori language learning  
Tyne Crow and David Parsons  
This paper describes the development and evaluation of a mobile assisted language learning tool that teaches some aspects of the Māori language within a virtual game world. The game uses a simulated world, which reflects aspects of Māori art and |
### Paper 1: Technology integration in diverse contexts: Models of competency-based professional culture of learning and innovation
Kathryn Martin, Tim Baird and David Miyashiro

Innovation in education requires educators to develop new skills, knowledge, and mindsets. Reimagining professional learning approaches to provide educators with the time, space, and resources to develop the necessary competencies is critical to creating optimal learning environments. Three school district leaders from urban and suburban districts in the United States with high populations of second language learners will share their competency-based professional learning model. The district leaders will share their professional learning models and the impact in their unique context. The focus will be based on creating optimal learning environments. Three school district leaders from urban and suburban districts in the United States with high populations of second language learners will share their competency-based professional learning model. The district leaders will share their professional learning models and the impact in their unique context. The focus will be on personalized professional learning to support powerful learning and teaching accelerated by technology. An emphasis will be on personalized professional learning and demonstrations of teacher development linked to student outcomes rather than seat time. Implications will be shared for designing an ecosystem, characterized by high expectations and high support, to impact a culture of learning and innovation.

### Paper 3: Going mobile: Using SNSs to promote STEMI on the backseat of a taxi across Africa
Ron Beyers and Seugnet Blignaut

This paper reports on the establishment of an educational service to promote Science, Technology, Engineering, Mathematics and Innovation (STEMI). The service uses MXit, a cost effective social media based on a Wireless Application Protocol (WAP) to reach low income users primarily across Africa, though not necessarily restricted to this continent. Users are encouraged to submit STEMI-related questions to the care of MXit, a web or Facebook interface. The findings indicate a growing and diverse user group of 15 to 25 years old. The initial phases of the project showed South Africa as the highest user base. Analysis of the feedback from the users was used to refine the service through action research. Students asked a variety of questions which were assigned to 22 different categories of which Biology, Physics, Chemistry and general knowledge featured as the most frequent questions. Career Guidance and Health related categories were also prominent. Statistics indicate regular use of the service over a 24 hour period, with prominent peaks before and after school, intimating that users were accessing the service from the back seat of a taxi on route to and from school.

### Paper 4: Towards design patterns for augmented reality serious games
Alessandra Antonaci, Roland Klemke and Marcus Specht

For professional workers today, keeping up with knowledge and the continuous technology progress is challenging. Increased innovation speed and dynamic work situations shorten preparation times for new tasks significantly. Traditional professional training approaches preparing employees for new tasks are becoming inappropriate. Thus new educational means are needed. These would help employees get acquainted with new situations faster and more efficiently. According to learning theories such as action learning and situated learning, which embed the learning process in the application context and challenge the learner to be actively involved help to improve the learning process. These theories are the basis for mobile learning and serious games. From research in Serious Games we know that games have the potential to actively involve learners and to immerse them in a learning situation and increase their engagement. With Augmented Reality (AR) and wearable devices a new generation of tools and applications becomes available, which inherently are mobile, contextualized and personalized. First successful application scenarios show the potential of these new technologies for education and training. While the application of game-design patterns to learning processes help to systematically design learning games supporting specific learning outcomes, an empirically tested, systematic approach towards the design of AR-based learning solutions is still missing. Based on the state of the art in AR research and in applying design patterns for serious games, we consequently propose a research methodology to apply game design patterns to augmented reality-based learning games for the training of professionals in dynamic situations.
<table>
<thead>
<tr>
<th>Venue</th>
<th>Tuesday 20 October</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09:00 - 10:30</td>
</tr>
<tr>
<td>Parallel 1</td>
<td></td>
</tr>
</tbody>
</table>

**Paper 2:**  
**Rhizomatic Learning practices in mLearning: A synthesis of existing qualitative research**  
Lydia Mbati

Educational technological innovation to enhance the learning experience of students requires a sound understanding of intended learning outcomes. Similarly, an understanding of the pedagogical affordances of technology is required in order to make appropriate choices regarding which technologies are most suitable to achieve intended outcomes. While mLearning is perceived as the future of learning (Arrigo et al. 2013), an understanding of its application in facilitating the achievement of specific learning objectives is limited. This may lead to negative quality perceptions and subsequently have a negative impact on the adoption of potentially rich technological resources. The challenge for educators is to create learning environments based on sound didactical principles (Brown, 2003). The purpose of this study is to highlight rhizomatic principles in mLearning practice. This may contribute to creating an awareness of rhizomatic principles in mLearning practice and this in turn may improve their practice. Using a qualitative research synthesis approach, this study integrates the findings of published research with the aim of highlighting mLearning practices that stimulate rhizomatic learning in mLearning students.

**Paper 3:**  
**Use of Web 2.0 and mobile technologies for developing argumentative skills**  
Susan Gwee and Shalini Damodaran

Web 2.0 and mobile technologies have the potential to support learning outside formal learning spaces. In this paper, we examine the extent to which the use of Web 2.0 and mobile technologies has an impact on the argumentative skills of Grade 11 students in a Singapore high school. Using a quasi-experimental and mixed method research design, we looked at the quality of students' writing at the end of a six-week intervention that involved students using Schoology to read assigned materials, share new materials, post arguments, and respond to their classmates' arguments. We also examined both student and teacher interview transcripts to gain an understanding of how students and teachers viewed Schoology as an e-learning tool. Students in the experimental group showed higher levels of argumentation skills compared to students in the control group. Findings from student and teacher interviews concerning the use of Web 2.0 and mobile technologies to help them develop argumentative skills were mixed. The analysis of the interviews revealed that some students felt that it was distracting because they tended to veer into social media sites and preferred to use them in the classroom, while others felt that Schoology provided a great platform for them to develop argumentative skills as peer feedback gave them multiple perspectives. It developed a community of learners, and provided an interesting and interactive experience. The participation rate was higher on the online platform compared to classroom discussion. The teacher reported that students’ essays became more coherent and their content more relevant.

**Paper 4:**  
**Assimilate or accommodate? The need to rethink current use of the term ‘mobile learning’**  
Jocelyn Wishart

For a decade now, as mobile devices are found in an ever wider range of learning situations and contexts, mobile learning researchers have sought to define (Sharples, Taylor and Vavoula, 2007; Wexler et al., 2008) and redefine (Crompton, 2013) mobile learning in a way that is meaningful within this increasing range. However, the need to assimilate this ever increasing range of situations and contexts has become a progressively more complex challenge which is well illustrated by Park’s (2011) paper that aims to categorise educational applications of mobile technologies into four types. Like many others Park includes the classroom as a pedagogical context for mobile learning. However, Sharples et al. (2007)’s original definition emphasised the assumption that, for learning to be mobile, learners are continually on the move which is clearly not the case for students using mobile devices in class to, say, record audio or video or as a classroom voting system. Yet we continue to try to assimilate these instances into our understanding of mobile learning. Is it not now time to accommodate this complexity and create a new concept reserving the original term ‘mobile learning’ for mobile technology supported learning opportunities that involve the learners physically moving between contexts? This paper will therefore engage its audience in a debate about whether it is time to rethink definitions of mobile learning to exclude static, classroom based learning opportunities using tablets such as iPads or students’ own mobile devices. Such learning opportunities would need renaming, maybe ‘handheld learning’ or ‘hand-e-learning’? Though that begs the question, is this not just another form of e-learning making a separate name unnecessary? Other suggestions will be invited on the day so as to involve both experienced and new researchers in this debate.
Thursday 22 October 2015

<table>
<thead>
<tr>
<th>Venue</th>
<th>Thursday 22 October</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09:00 - 10:30</td>
</tr>
<tr>
<td>Parallel 2</td>
<td></td>
</tr>
</tbody>
</table>

**Theme:** Innovations in technology for mobile learning  
Chair: Kathryn Martin

**Paper 1:**  
A multiple case study approach exploring innovation, pedagogical transformation and inclusion for mobile learning  
Kathryn Mac Callum, Stephanie Day, David Skelton, Ishtvan Lengyl and Michael Verhaart

Mobile learning has enabled students to be active participants in their own learning. Students now have the ability to better develop and control their learning inside and outside the teaching context. Effective mobile learning practices require educators to develop an environment that fosters and supports their student’s learning. Educators are however, still struggling with how to effectively support a learner-centred mobile learning environment. In 2014, six New Zealand (NZ) tertiary institutions became involved in a nationwide project that aimed to explore how mobile technology could be effectively incorporated into tertiary education to provide increased inclusivity and to support innovative and transformative classroom practices. To guide the project, a framework was adopted to help support the teachers to better integrate mobile devices to facilitate learner-generated contexts. The framework adopted blends several interrelated learning frameworks interpreted within the pedagogy-andragogy-heutagogy (PAH) continuum. This paper reports on four cases studies exploring how mobile technology was incorporated at one of the institutes involved in the wider project. These case studies explore how four lecturers have employed mobile devices to enhance students’ learning opportunities within four different computing courses. Each case study focuses on how mobile technology has been integrated and includes a discussion on the benefits and issues of the technologies encountered within each case.

**Paper 2:**  
Learning with wearable technologies: A case of Google Glass  
Daniyar Sapargaliyev (video presentation)

The purpose of this study is to determine how wearables are used in education. Different types of wearable technologies, such as smart watches, fitness trackers, smart glasses, HoloLens or even smart clothing are gradually changing the structure of global consumer market. These changes inevitably lead to transformation of educational spaces. This paper presents a review of scientific literature for the last three years (2013-2015) in the field of using Google Glass as a teaching and learning tool. We have analysed over thirty papers in reviewed journals, proceedings of conferences and scholarly web sources. In recent years, there has been an increasing amount of literature on the use wearable technologies in education. Wearable devices are used by explorers, librarians and educators at workplaces, university libraries, laboratories and classrooms. Learning with wearables is one of the most widespread trends in medical or especially surgical education. Wearable computers are actively used by library staff and assist to library patrons at universities. Some of the pilot projects in learning with wearables help students to study anatomy, physics and other discipline through application prototypes. Overall, some sources indicate that learning with wearable technologies has big perspectives while other ones show several examples of low efficiency in using wearable technologies in education.

**Paper 3:**  
Sense-it: A smartphone toolkit for citizen inquiry learning  
Mike Sharples, Eloy Villasclaras-Fernández, Christothea Herodotou, Maria Aristeidou and Eileen Scanlon

We describe a toolkit for Android smartphones and tablets that enables a user to access all the sensors available on the device. Data from individual sensors can be viewed as dynamic graphs. Output from one or more sensors can be recorded to a spreadsheet, with the sampling rate set by the learner. As a tool for inquiry learning, the sensors can be linked to ‘missions’ on the nQuire-it website, allowing learners to sample and share data for collaborative crowd-sourced investigations. Four nQuire-it missions have employed the sensor toolkit for investigating environmental noise, sunlight levels, air pressure and rainfall, and the speed of lifts (elevators). These four investigations represent a variety of methods to initiate, orchestrate and conclude inquiry science learning. Two of the missions are in the context of a study to develop a community of inquiry around weather and meteorology. The others are intended to engage members of the public in practical science activities. Analysis of the missions and the associated online discussions reveals that the Sense-it toolkit can be adopted for practical and engaging science investigations, though the issue of calibrating sensors on personal devices needs to be addressed.

**Paper 4:**  
Teachers Matter - Challenges of using a location-based mobile learning platform  
Christian Sailer, Joram Schito, Peter Kiefer and Martin Raubal

This paper presents the design of a learning management system for location-based mobile learning and reports on first experiences of ongoing user studies with a location-based mobile learning platform. This platform allows teachers to create...
Difficulties experienced by students using mobile technology to access e-learning

Daniel Adeboye and Corné Van Staden

Paper 3: The practices of sharing and curating content, as well as allowing ‘visibility’ through artefacts created by the learners.

will be drawn to designing language learning by blending traditional language classroom practices along incorporating the digital tools used by students in their informal learning to enhance their learning. Particular attention will be paid to the incorporation of mobile technologies within language learning and teaching.

In this respect, our experiences with the mobile learning platform that we used in our study will prove useful for identifying the challenges experienced by students in their voyage from e-learning to m-Learning. The study focused on identifying which devices (i.e. mobile technology or laptops) students are using to access the e-Learning environment.

The type of device used to access the e-Learning environment is imperative as research has indicated that both the users and designers experience challenges in the transition. The move from accessing e-Learning using a desktop computer to accessing e-Learning from a mobile device such as a tablet, poses a number of challenges for both students and designers of the e-Learning environment. The study was guided by the following research question: What are the difficulties students face when learning takes place using a mobile device? The research design used an interpretative approach and case study strategy. A non-probability sampling method was used to select the participants. A total of one hundred and eighty undergraduate students from the Faculty of Information Technology at the Private Higher Education Institution participated in the study. A semi-structured questionnaire was used as a tool to obtain both structured and unstructured data.
Parallel 2

Thursday 22 October
09:00 - 10:30

quantitative and qualitative data and was analysed. The study results identified difficulties involving technical problems, distractions by applications on the mobile devices and issues of health such as eye constraint. Suggestions made to solve or reduce these problems are the provision of suitable internet connection to students, provision of alternative forms of academic materials and a general online help-desk forum. Proper implementation of these recommendations will enhance learner satisfaction of students who want to engage and embrace m-Learning.

Paper 4:
**Socio-Technical Factors That Influence Learning Management Systems’ Adoption in Developing Countries**
Mpaphi Molebatsi

The advent of information technology has brought major developments in the way institutions harness, store and distribute information. This paper draws a lot of insight from already identified socio-technical factors and information system theories to measure and test their influence towards learning management system adoption. These factors are used to stress the give-and-take interrelationship between humans and technology and in the process promoting usage which in turn promotes efficiency. Course instructors, system administrators and content developers need to be aware of such factors in order to maximize utilization of the tools that are employed by institutions to improve education.

Friday 23 October 2015

Friday 23 October
09:00 - 11:30

Parallel 3

**Theme:** Workplace, adult and higher education  
**Chair:** Aga Palalas

Paper 1:  
**Using mobile devices in supervision of graduate research in distance education: A personal journey**  
Margaret Ramukumba

Supervision of research, especially during the proposal writing stage requires access to adequate intellectual resources, and can be a daunting task for master’s students, more so, when they are supervised in an open distance learning context (ODL). The emergence of innovative technologies and smartphone applications has increased the potential of m-learning and therefore, m-supervision. The purpose of this paper is to describe my personal journey in supervising graduate students using personal mobile devices in (ODL) context. Autoethnography following Driscoll (2000) model of structured reflection guided my reflective narrative. Reflexivity provided the opportunity to challenge myself to explicitly examine my supervisory practices, assumptions, personal epistemologies, and emotions involved in mobile supervision. Strategies used to bridge the distance gap included instant communication (Whatsapp), Wikispaces as a repository for learning triggers, Dropbox for immediate and elaborate feedback, and Skype for individual, collaboration and incorporation of alternative perspectives. These strategies were embedded within various tenets of learning theories and supervision pedagogy. The reflective data illuminated the potential of using a safe and informal communication space to enhance students’ outcomes. The informal social environment offered means of blending affective domain, rationality and autonomy in supervision. Supervisory pedagogy for mobile devices is worthy of being explored and exploited.

Paper 2:  
**Developing a sense of identity as a governor within a mobile learning community**  
Susan Gwee and Ek Ming Tan

Using a quasi-experimental design, this paper examines how 36 Grade 9 students in a Singapore high school developed their sense of identity as a governor within a mobile learning community. In the traditional social studies classroom, students are taught how governors should govern their towns or countries in an ideal situation. Statecraft X, a mobile-phone game-based curriculum supporting the learning of principles of governance, however, allowed students to have a first-hand experience of being a governor within a mobile learning community, to assume the identity of a governor and to communicate with each other as governors. The server-based game design of Statecraft X ensures that there is a common experience within groups of players as well as between groups. It was hypothesized that civic learning mediated through a mobile game would help students develop a stronger sense of identity as a governor than those who learnt in traditional social studies classrooms. The final student assignment of this study was the presentation of a speech, which enacted students’ understanding of principles of
| Venue | Friday 23 October  
| Parallel 3 | 09:00 - 11:30 |

| Paper 3: | The utilisation of mobile technologies in higher education: Lifebuoy or constriction?  
Sunet Eybers and Apostolos Giannakopoulos | governance, based on their game experience, and in-class and outside-classroom activities. Data sources included surveys and written speeches. Analysis of the surveys showed how students developed their identity as governors and adopted civic values. The analysis of the written speeches indicated that students had enacted their sense of identity as governors as shown by their scores in relevance of proposed policies, perspective, and personal voice. |

| Paper 4: | How do students perceive integrating mobile technology in a Journalism course on a remote campus in South Africa?  
Helga Hambrock | The utilization of mobile technologies for the purpose of mLearning has immense potential in education whether face to face, blended or distance. With the current high ownership rate of these devices around the world it is quite surprising that mobile devices are not utilized extensively. This study is part of a larger study that investigated the utilization of mobile devices in a blended environment from the students’ perspective. It uses the behavioral dimension as described in the ‘Uses and Gratification Theory’ (Balakrishnan and Raj 2012) to investigate behavioral issues in the adoption of mLearning approaches at the International University of Management in Namibia, a developing country. The main target population was students enrolled in Business Information Systems. The rich data collected contain a multi-dimensional aspect and in this paper the reasons that students use mobile devices and the reward they receive upon usage is analysed. It was hoped that by identifying such reasons for use of the devices and barriers that might exist in not using them can be used as a starting point to increase the use of mLearning using mobile devices within this environment. The main objective is to ensure that mLearning becomes a lifebuoy and not a constriction. |

| Paper 5: | Non-academic needs impacting on the academic performances of Accounting students: A mentorship intervention  
Elmarie Sadler | Although Unisa is known for its formidable contribution to the number of Black and Coloured candidates passing the ITC examination of SAICA, the low throughput of these students on the CTA level is a well-known fact. However, the problem of student throughput at Open Distance Learning (ODL) institutions is a well-researched topic. Most of these students emanate from disadvantaged backgrounds and face deeply rooted social economic challenges. This, in combination, threaten success (Subotsky & Prinsloo 2011: 177). The literature (Greer, Hudson and Paugh 1998; Willging and Johnson 2004; Rovai 2007; Subotsky and Prinsloo 2011:178) has shown that student success in an ODL environment is influenced by effective mutual engagement, going beyond the academic domain. Particularly in ODL, non-academic factors in students’ life-circumstances strongly influence success. Likewise, the effectiveness of non-academic institutional support, administrative services, and organisational cultural dynamics, directly impact on success in ODL. The Unisa College of Accounting Sciences consequently launched online, telephonic and face-to-face mentoring interventions to address those non-academic factors indicated by the scholarly literature as key success factors of students in an ODL environment. This paper subsequently reports on the implementation of these interventions and proposes a conceptual framework for assessing the success of these interventions. |

| Paper 6: | Alternative assessments - the journey from venue-based examinations to take-home and online timed assessments  
Odette Swart | Limited venues and the astronomic costs of securing venues all over the world to assess students at the University of South |
<table>
<thead>
<tr>
<th>Venue</th>
<th>Friday 23 October 09:00 - 11:30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parallel 3</td>
<td></td>
</tr>
</tbody>
</table>

Africa (Unisa), South Africa's biggest open distance learning institution, forced the university to embark on a journey exploring different possibilities to move away from the traditional venue-based examinations. Alternative assessment types were identified and thus the focus was placed on available technology-enhanced options. One of these options included take-home assessments (including timed assessments and multiple-choice questions that could be completed on personal computers as well as mobile devices). The Unisa systems did not make provision for alternative assessments and had to be reconfigured by way of action research to accommodate different forms of technology-enhanced assessments. The process proved to be quite complex, as various parties had to be consulted. Various other issues, such as exploring the system requirements for the new business processes; the needs of the academics, including quality assurance of these assessments; and the requirements of the Examinations department had to be addressed. Feedback was also provided by the module lecturers and students who participated in the pilot. The need to document the progress of the project since inception thus arose to provide a clear understanding of the lessons learned by a mega-university.

### Theme: Mobile technologies, tools and resources
**Chair:** David Parsons

**Paper 1:**
**Transforming teaching and learning: Implications of a one-to-one laptop initiative professional learning and teacher practice**  
Veronica Garza

Increased access to technology in school districts across the United States has sparked a growing demand for teachers and administrators to transform traditional teaching and learning models. These changes require a clear vision and plan to support educators through the transition. This paper presents findings from the second year evaluation of a one-to-one student laptop initiative in a large urban district in the United States that illustrate the impact of vision and planning on efforts to support changes in teacher practice, classroom culture, and student engagement. Additionally, this paper details how an outside evaluation has informed practice within the district and mobilized leaders to move towards a more personalized professional learning approach designed to leverage the power of technology. Strategies and recommendations for how to better support district and school leaders in using technology to enhance teaching and learning are provided.

**Paper 2:**
**What is the potential of Mobile Learning Technologies (MLTs) and their applications to support the needs of indigenous learners in Canada?**  
Siomonn Pulla

The use of wireless technology has the potential to revolutionize e-learning, helping to create, deliver, and facilitate learning regardless of the location, and enabling the delivery of comprehensive, individualized, and dynamic learning content in real time. M-learning is a natural extension of e-learning and has the potential to make e-learning even more widely available and accessible. For over a decade, international e-learning communities have been developing, implementing and testing innovative m learning programs and infrastructure. The picture in Canada, however, is much different: we still do not have a comprehensive or coherent approach to align the incredible potential of e-learning and the fast-developing area of m-learning with an informed understanding of what it could or should accomplish. Existing research and programming indicates that e-learning for Indigenous secondary school students is proving to be a successful tool to support positive education outcomes. And while m-learning for Indigenous students is still in its infancy, this is the next step to enhancing and growing the success of these e-learning frameworks. The overarching outcome of this research is to contribute to a broader vision of the possibilities for building sustainable collaborative partnerships across the public, private and NGO sectors in order to better understand the potential applications of MLTs in support of e-learning and m-learning for Indigenous learners in Canada.

**Paper 3:**
**Using video to improve educational mobility**  
Linda van Rynneveld and Fran Greyling

The prevalence of mobile phones and tablets can be confirmed by simply observing those around us. As such, the potential for educational mobility has become a reality. In this research paper an investigation into the utilization of videos in a mobile learning context is reported. In the first of two themes, the use of video generated for learners is discussed. The aim of the project was to support mobile learning at a distance in a short learning programme for working adults in the South African public service. The second theme deals with the use of learner-generated videos in academic modules that are presented on a face-to-face basis at a residential university. This paper aims to provide practical guidelines for designing, generating and implementing educational videos in a mobile learning environment from the perspectives of both facilitator and learners.

**Paper 4:**
**Mobile notetaking: Surfing the waves of change**  
Mari van Wyk and Linda van Rynneveld

Students often complain about the balancing act they need to follow in class between trying to read from slides, actively
Paper 2: 
Potential for integrating mobile technologies for programme delivery. SMARTguides as a teaching and learning tool due to institutional constraints, and have mixed feelings on the use of and the lecturers should steer the integration of mobile technologies for authentic teaching and learning. The study culminated in a series of structured focus groups where valuable feedback was received on how students used their various mobile devices for note-taking in class. Our research findings include insights about their choice of mobile devices, the software and applications used, as well as the students’ perceptions about what worked well and what did not.

Paper 5: 
Introducing an iPad innovation into Accounting tutorials
Laurel Dyson, Jessica Frawley, Jonathan Tyler and James Wakefield

This study reports on the second phase of a trial to change tutorials in an Introductory Accounting subject into more interactive, student-centred learning experiences using an iPad combined with sharing and annotation technology. The technology allows student homework to be photographed, shown to the class instantaneously through a data projector and annotated live by the tutor using the iPad, with student input. The innovation addresses calls from the Accounting Profession for educational approaches which use technology in imaginative ways to engage students and shift from the didactic paradigm that has dominated so much of accounting education in the past. The approach has the advantage that only one iPad is required per class and is used in conjunction with free software: it is thus cost-effective and scalable to the large numbers of students enrolled in the subject. The trial reported in this paper involved two classes conducted with the iPads and two traditional classes without. Evaluation comprised observations of the four classes and a survey of the students regarding their experiences in the tutorials. The results revealed that the use of the technology did not of itself transform the classes into interactive, student-centred events: the teaching style of the tutor to a large extent determined how the iPads were used and how much interaction occurred. However, students in classes with the iPads were mostly enthusiastic about their use, even if the results of the survey generally failed to show statistically significant differences between the classes with iPads and those without.

---

**Friday 23 October**

**Parallel 4**

**Theme:** Workplace, adult and higher education  
Chair: Linda van Ryneveld

**Paper 1:**  
The ship has left the harbour, but the captain is MIA: mobile adoption within HEIs  
Verona Leendertz and Marieta Jansen van Vuuren

Mobile technology enables access to information through a variety of transmission media, like voice, text, video, and two-dimensional barcodes, anywhere, anytime. Therefore the current students expect mobile integration for teaching and learning to be the norm at Higher Education Institutes (HEIs). The purpose of this paper was to explore students’ adoption of mobile devices for programme delivery versus the lecturers’ acceptance or resistance to investigate the use of and potential for integrating mobile technologies for authentic teaching and learning in HEIs. The study used a multi-mode research design and methodology. Data collection strategies included: (i) a survey distributed in 2014 to 207 first and second year students from the Faculties of Humanities and Economic Sciences and Information Technology at the Vaal Triangle Campus (VTC) of the North-West University, and (ii) two individual interviews with lecturers from the two faculties. The quantitative and qualitative data were analysed with the use of the Technology Enhanced Learning (TEL) framework and the Technology Acceptance Model (TAM) to predict whether the students and lecturers adopt the use of SMARTguides on tablets/iPads for authentic teaching and learning at VTC. Results indicate that students adopt mobile technologies for programme delivery; however, even though lecturers should steer the integration of mobile technologies for authentic teaching and learning, lecturers are reluctant to use SMARTguides as a teaching and learning tool due to institutional constraints, and have mixed feelings on the use of and the potential for integrating mobile technologies for programme delivery.

**Paper 2:**  
Facilitating knowledge visualisation as communication and knowledge transfer mechanism in
Paper 1:
The adoption of mobile technologies in a higher education institution: A mixed methods study
Apostolos Giannakopoulos and Sunet Eybers

This paper is about the implementation of mobile technologies to improve teaching and learning. By mobile technologies is meant any wireless and transferable device which includes laptops, smartphones, tablets, smart devices and PDAs. Research on the use of mobile technology for educational purposes is relatively new. As a result various findings might not be either generalizable or valid as review of literature showed that some findings are contradictory. However, these contradictions in literature are acceptable for any new idea that deals with human phenomena like education. Since mobile technologies are part of the broader ICT their appropriate usage could contribute to the teaching and learning situation be it distance or face to face education (secondary or tertiary). A study was conducted at the International University of Management in Namibia to discover the impact of mobile technologies in the teaching and learning in the field of Business Information Systems, using one undergraduate and one postgraduate group. Structured interviews were conducted and a questionnaire was completed by both groups. Two tests were written by an experimental and a control group. The results, although not generalizable, were very encouraging as it indicated that there was a significant difference in performance in the tests between the two groups.

Paper 2:
Postgraduate learning
Judy van Biljon and Karen Renaud

Advances in technology and subsequent access to inexpensive software have made visualisation, as a method of knowledge creation and transfer, more accessible. Visualisations have been used to support knowledge representation and transfer in teaching but the focus has primarily been on creating visualisations for learner consumption. The idea of students becoming active participants in producing visualisations, as part of knowledge creation and learning, has largely been overlooked. The study reported here investigated the use of visualisation for summarising knowledge at postgraduate level. The student's need to assimilate and organise knowledge is an important part of their learning. We suggest that it would be useful for students to learn how to produce knowledge visualisations as part of this activity. The production is an act of knowledge creation, which can improve their comprehension of the research literature. Producing visualisations is not necessarily straightforward and it is therefore advisable to scaffold the process. We propose a faded-struts learning process that gradually removes scaffolding as the learner masters the principles and becomes more adept. The contribution of this research is to present the idea of providing worked examples and faded examples to support postgraduate learning. This helps postgraduates to craft knowledge visualisations so that they can slowly become more proficient and independent. Due to the ubiquity of mobile devices we propose providing this support on these devices, incorporating their unique constraints and affordances in our learning process. This is essentially a proof of concept paper, suggesting how the idea could be realised. Further work is necessary to test the idea with students and to extend the repertoire of mobile learning (m-learning) visualisation tasks.

Paper 3:
Small talk versus smart talk: Providing Accounting content and emotional support in a distance education course
Annelien van Rooyen and Jacobus Wessels

Integrating mobile phones into higher education, and more specifically in the distance education context, is no longer regarded as a strange phenomenon. Mobile devices are widely used by distance education institutions to make learning available and accessible to increasingly more students. Although mobile learning provides more mobility and convenience to these students than online learning, students may still experience the distance gap if communication and guidance are not incorporated into the presentation of a course. Börje Holmberg refers to this guidance of the student by the facilitator as ‘didactic conversation’. His theory postulates conversation as essential in a distance education course to explain content, and to correct and redirect the student. By creating a sense of emotional involvement, students will feel more connected to the course than before, which will inevitably increase study pleasure and motivate students to learn. This paper reports on a case study of a selected group of students’ perceptions and experiences of the use of mobile phones in an accounting module at the University of South Africa to bring about more didactic conversation. Making use of short message service (SMS) and instant messaging software on mobile phones, regular communication between the facilitator and the students was increased. The qualitative data provided insight into how participating students perceived the use of these tools to assist them in their studies. Based on the evidence provided, it was evident that mobile phone intervention increased communication and exchanging of views. Creating a feeling of empathy and belonging, students enjoyed their studies and felt motivated to persist throughout the semester.

Paper 4:
The adoption of mobile technologies in a higher education institution: A mixed methods study
Apostolos Giannakopoulos and Sunet Eybers

This paper is about the implementation of mobile technologies to improve teaching and learning. By mobile technologies is meant any wireless and transferable device which includes laptops, smartphones, tablets, smart devices and PDAs. Research on the use of mobile technology for educational purposes is relatively new. As a result various findings might not be either generalizable or valid as review of literature showed that some findings are contradictory. However, these contradictions in literature are acceptable for any new idea that deals with human phenomena like education. Since mobile technologies are part of the broader ICT their appropriate usage could contribute to the teaching and learning situation be it distance or face to face education (secondary or tertiary). A study was conducted at the International University of Management in Namibia to discover the impact of mobile technologies in the teaching and learning in the field of Business Information Systems, using one undergraduate and one postgraduate group. Structured interviews were conducted and a questionnaire was completed by both groups. Two tests were written by an experimental and a control group. The results, although not generalizable, were very encouraging as it indicated that there was a significant difference in performance in the tests between the two groups.
The present study describes our on-going efforts aiming at refining and validating a Mobile Seamless Learning (MSL) approach supported by mobile Digital Storytelling (mDS). Considering learning factors of locality, formality and time, as well as elements of designs for learning and technical development, we have chosen six dimensions of the MSL framework (Wong & Looi 2011) to support our work. Guided by the principles of co-design (Spikol et al. 2009) and design-based research (Design-Based Research Collective, 2003; Ejersbo et al., 2008), we collaborated with 4 teachers and 54 pupils, devoting an extensive amount of time to design, develop and enact the phases of our proposed mDS workflow supported by mobile and web technologies. Beyond the mobile application developed for mDS, we have developed and integrated web solutions that support the overall learning experience, and tools that allow teachers to orchestrate the activities. The mDS web serve as a platform for continued work over time, such as reflecting, remixing, and reusing the digital content generated during the activities. The web platform provides means for teachers to search, watch, group, and assess the pupils’ mDS outcomes, and therefore serves as the interconnecting glue between all the learning activities involved in the mDS workflow. This study reports on the activities conducted in four classrooms in the spring of 2015, working with the five phases of the mDS approach. The outcomes of our efforts reinforced the importance of an active involvement by teachers to adopt and incorporate innovative technology enhanced learning (TEL) activities and solutions into their everyday educational practices, but most importantly on the need for schools to acquire self-governance on how to make use of their learning technologies.

Paper 2:
Heutagogical approaches in the understanding and modelling the adoption of mobile learning
Kathryn Mac Callum, Lynn Jeffery and Kinshuk

The purpose of this paper is to investigate how the factors that influence a learner’s ability to be self-directed (Andragogy) and self-determined (Heutagogy) may influence the understanding and modelling of mobile learning adoption. Heutagogy is seen as a progression along a continuum of pedagogical approaches from pedagogy to andragogy to heutagogy, where learners need to progress from each with the aim of becoming highly autonomous and mature learners. Due to the nature of mobile technology, learning can be orientated towards the learner to support their needs. Learners are now better equipped to manage and control their own learning as learning can take place anywhere and anytime. However not all students possess the required traits, such as self-management, self-control and desire for learning, that signal that are ready for learning that is no longer teacher-lead and directed. The study examines the results of a survey (n=446 students) assessing how the traits that indicate a readiness for learning that is self-directed and self-determined, can impact on students’ perceptions and adoption of mobile learning. This model was tested using structural equation modelling. The findings showed that there was a strong association with the factors of self-management, self-control and desire for learning on the positive perception of mobile learning and adoption. The study reinforces the need for scaffolding and developing learners so that they are comfortable to succeed in an environment that is self-directed and determined.

Paper 3:
Mobile learning: Flipping nutrition learning and multimedia in a higher education classroom
Chrisna Botha-Rayvye, Seugnet Blignaut and Martin Booth

Flipping classrooms from traditional teaching approaches to technology-enhanced interactive classrooms requires that previously designed software be revisited for mobile use. This paper: (i) describes how an existing custom-made test-and-quiz multimedia application, originally created in Articulate Storyline™, was re-designed for Adobe Flash™ to encapsulate the original functionality for use on an array of mobile devices; and (ii) qualitatively evaluates students’ perceptions of the value of the flipped-classroom approach. The self-assessment mobile assessment was integrated as part of a flipped-classroom with seventy two (N=72) Nutrition students. The module used technologies during a flipped-classroom approach to facilitation. The study captures students’ perceptions of the usefulness of the approach of students’ use of the mobile application from (i) students’ course evaluations and (ii) students’ evaluations in their nutrition competency portfolios. The analysis indicates that the students readily accepted the flipped classroom approach augmented with any-time-and-place classroom-based self-evaluation applications.

Paper 4:
Assessing teacher self-efficacy in mLearning professional development
Rob Power, Dean Cristol, Belinda Gimbert, Robin Bartoletti and Whitney Kilgore

The impact of targeted professional development activities on teachers’ perceptions of self-efficacy with mobile learning remains understudied. Power (2015a) used the Mobile Teacher’s Sense of Efficacy Scale (mTSES) survey instrument to measure the effects of a mobile learning themed professional development course on teachers’ confidence with, and interest in mobile learning. The current study looks at changes in perceptions of self-efficacy amongst participants in another open course about mobile learning called Instructional Design for Mobile Learning (ID4ML), which took place from May 4 – June 6, 2015 (Power, Bartoletti & Kilgore, 2015). The purpose of this study is to verify the reliability and construct validity of the mTSES instrument developed by Power (2015a, 2015b) and Power, Cristol and Gimbert (2014), and to explore trends in self-efficacy changes amongst a more diversified participant population. This paper reports on the findings from the analysis of data collected using the mTSES tool. The findings provide useful feedback on the impacts of participating in the ID4ML course. They also provide further support for the utility of the mTSES instrument as a measure of perceptions of self-efficacy with mobile learning. These findings point to the potential utility of the mTSES as a tool for both planning and evaluating mLearning.
<table>
<thead>
<tr>
<th>Venue</th>
<th>Friday 23 October</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13:30 - 15:00</td>
</tr>
<tr>
<td></td>
<td>Parallel 4</td>
</tr>
<tr>
<td></td>
<td>professional development training for teachers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Venue</th>
<th>Friday 23 October</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15:30 - 19:00</td>
</tr>
<tr>
<td></td>
<td>Plenary 2: Keynote 2 &amp; Closing</td>
</tr>
</tbody>
</table>

**42nd Street Theater**

- **Keynote address:** Blending mobile technology into seamless learning scenarios  [45 minutes]
  Marcus Specht

  Mobile learning technology in blended learning designs can enhance and deepen learning experiences in context, bridge different learning contexts, enable new forms of interaction with learning contents or real world artefacts, or be used for documentation of personal learning experiences in context. The keynote will outline some developments of mobile learning in the last years and frame them in the context of different instructional designs. Based on selected examples the added value of mobile components in seamless learning designs will be illustrated. The specific mobile components will be illustrated with several project examples and the theoretical background on why learning can be more successful will be outlined with recent empirical research. The presentation will give a basis for framing current development in mobile learning in a broader discussion of blended and seamless learning.