Blending MOOC in Face-to-Face Teaching and Studies

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Review Process

Papers submitted to this conference have been double-blind peer reviewed before final acceptance to the conference. Initially, abstracts were reviewed for relevance and accessibility and successful authors were invited to submit full papers. Many thanks to the reviewers who helped ensure the quality of all the submissions.

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Preface

These Proceedings represent the work of contributors to the 15th European Conference on e-Learning, ECEL 2016, hosted this year by the Charles University, Prague, Czech Republic on 27-28 October. The Conference Chair is Professor Jarmila Novotná and the Programme Co-Chair is Dr Antonín Jančařík.

The conference will be opened with a keynote address by Stanislav Štech from Charles University on the topic of *Opportunities and Threats in Introducing Educational ICT for Cognitive and Personal Development of Students*. Johan van Niekerk, from the Nelson Mandela Metropolitan University, South Africa will address the topic of *the use of Brain-Compatible Learning in an e-Learning Environment*. On the second day the keynote will be delivered by Michèle Artigue, Ecole Normale Supérieure, Paris, France on the topic *Mathematics Education in the Digital Era*.

ECEL provides a valuable platform for individuals to present their research findings, display their work in progress and discuss conceptual advances in many different branches of e-Learning. At the same time, it provides an important opportunity for members of the EL community to come together with peers, share knowledge and exchange ideas.

With an initial submission of 190 abstracts, after the double blind, peer review process there are 90 academic papers, 5 Phd Papers, 5 Work in Progress papers and 1 non academic paper in these Conference Proceedings. These papers reflect the truly global nature of research in the area with contributions from some 35 countries, including Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Czech Republic, Denmark, Finland, Greece, Hong Kong, Iran, Ireland, Italy, Japan, Lithuania, Malaysia, New Zealand, Norway, Poland, Portugal, Russia, Saudi Arabia, Singapore, Slovakia, South Africa, Spain, Sweden, Thailand, Tunisia, Turkey, United Arab Emirates, UK and USA.

A selection of papers – those agreed by a panel of reviewers and the editor will be considered for development and publication in the EJEL (Electronic Journal of e-Learning www.ejel.org).

We wish you a most interesting conference.

Jarmila Novotná and Antonin Jančařík
October 2016

Conference Committee

Conference Executive

Jarmila Novotná, Faculty of Education, Charles University, Prague, Czech Republic
Antonín Jančařík, Faculty of Education, Charles University, Prague, Czech Republic
Miroslava Černochová, Faculty of Education, Charles University, Prague, Czech Republic
Jiří Vaníček, Faculty of Education, University of South Bohemia, Czech Republic

ECEL Committee Members

The organisers would like to thank those members of the conference committee who assisted in the double-blind peer review process. A full committee list can be seen here:
http://www.academic-conferences.org/conferences/ecel/ecel-committee/

Biographies

Conference Chair

Dr Jarmila Novotná is a Professor in the Faculty of Education at Charles University, Prague, Czech Republic. She gained her Habilitée à diriger des recherché and her Chercheur titulaire, LACES from the University of Bordeaux 2 Segalen, France, Her main areas of research interests are Didactical conditions for the transformation of students' models of activities when grasping knowledge and skills and how to transfer research results into practice.

Programme Chair

Dr Antonín Jančařík is a Senior lecturer in the Faculty of Education at Charles University, Prague, Czech Republic. He gained his PhD in Algebra from the Faculty of Mathematics and Physics. His main areas of research interest are in the use of ICT for mathematics education and game theory.

Keynote Speakers

Dr. Michèle Artigue gained her a Ph.D. in mathematical logic from Ecole Normale Supérieure in Paris. For a significant amount of her academic career she has been attached to the Mathematics Department at the University Paris 7, where she is now Emeritus Professor. Her main research interests are the didactics of Calculus and Analysis and the integration of computer technologies into mathematics education. She has supervised more than 20 PhD students and has held many editorial and scientific responsibilities at national and international level. Between 1998 and 2006 she was Vice-President of the International Commission on Mathematical Instruction (ICMI). She was awarded the Felix Klein ICMI Award in 2013 for her lifelong research achievement and the Luis Santalo Medal in 2014 for her contribution to the development of mathematics education in Latin America.

Professor Johan van Niekerk is a member of faculty at the School of ICT at the Nelson Mandela Metropolitan University in South Africa. He holds a PhD in Information Technology and has Master's degrees in both Information Technology and Education. His research interests include Brain-compatible Education, E-learning, Cyber Security, Cyber Security Education, Computer Game Design, and Artificial Intelligence. He is the current South African representative on IFIP TC 3 and is also a member of IFIP WG 11.8 and IFIP WG 11.12. He has more than 60 peer-reviewed research publications.

Dr Stanislav Štech is a Professor in Educational Psychology at Charles University Prague, Czech Republic. His interests have developed from sociocultural theory to identifying psychological assumptions, and then to empirical research about learning. Adopting a cultural psychological perspective he has developed an understanding of teaching/learning processes as domain-specific. Stanislavhas held many academic positions around Europe. He has published books, articles and research papers mainly in Czech and in French and serves on a number of journal editorial boards. He gained his PhD in work and management psychology at Charles University in 1984.

Philip Wilkinson-Blake has worked in Higher Education for over 25 years and has developed skills in the areas of Information Technology, Electronic Engineering and e-Learning. He currently works for Loughborough University School of Business and Economics, where he leads on the development of strategies to support blended, open and partial distance learning courses.He has worked with FutureLearn on the development of several FutureLearn MOOCs. His specialist areas are instructional design techniques and theories, project management for successful delivery of courses; and methods to migrate traditional face-to-face courses to a blended environment.

Mini Track Chairs

Dr Viktor Fuglík is an Assistant Professor in the Department of Information Technology and Education, Faculty of Education, Charles University in Prague. He is involved in lectures and seminars for bachelor and master students and for lifelong learning. His research interest are on solving scientific problems in the field of the didactics of ICT. He has published in national and international journals and peer-reviewed proceedings. He is also interested in the area of the e-Portfolio as an instrument to support evaluation and self-assessment.

Dr Mélanie Ciussi is Professor of Education and ICT at SKEMA Business School in France. She is also co-responsible for the Programme on creativity and sustainable innovation at SKEMA. She is a researcher at the University of Aix Marseille I (Psychology and Education Sciences) and I3M (Information and Communication Science). Her Phd research focused on networks and communities of practices in virtual learning environments. Other areas of expertise include Mobile Learning and 3D educational simulation games for children, which she worked on for a period of two years as head of this project for the French ministry of research. Mélanie was previously employed by French Riviera Chamber of Commerce where she was responsible for elearning for 5 years. She has consulted on a range of e-Learning issues such as course design, social learning, elearning innovations and training needs assessment with elearning tools. She studied Economics, has a Masters degree in Marketing (1996) and in Training & Multimedia (2002). Before moving into research, she worked for Marks and Spencer for 3 years as Assistant Personnel Manager across Scotland and Belgium.

Prof Vitor Santos is an Assistant Professor at NOVA IMS - Universidade Nova de Lisboa and European University, where he teaches courses for Computer Science and Informatics Engineering Degrees. He is part of several international conference scientific committees and he has authored several academic publications. Vitor holds a BSc in Informatics Engineering from Cocite, a Postgraduate course in Computer Science from Science Faculty of Lisbon University, an M.Sc. in information Systems Science and a DEA from Minho University (UM). He holds a Computer Specialist title from Polytechnic Institutes of Guarda, Castelo Branco and Viseu, and a PhD in Technology Information Systems Science from UM.

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Dr Jiri Dlouhy graduated from the Czech Technical University and now works at the Charles University Environment Center as head of the Education department. His research interests are in the field of IT technologies and open education resources (in education for sustainable development) from both a theoretical and practical point of view. He is a member of the Steering Board of the Sustainability Council of the Czech government, president of the Czech Society for Sustainable Living, member of the Board of the European Environmental Bureau and member of the European ECO forum Coordination Board.

Clare Gormley is a Learning Technologist with the Teaching Enhancement Unit at DCU and has worked in online education for over 16 years. She has an MSc in Applied eLearning and has worked with faculty from software engineering, science, and humanities disciplines to create engaging and pedagogically sound courses for online learners. Her core interests include learning design,

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Rikke Ørngreen researches theories, methods and tools in the development, planning, implementation and evaluation of digital learning processes. I have a particular interest in digital video conferencing and methods that support creative and reflective learning processes, as various co-production tools. Another interest is the philosophy of science, as when investigating and contributing to design-based research and action research approaches and sciences.

A. Pagano is a junior researcher in Computer Science at University of Bari. His research topic is about Open Source impact on Enterprise Software Development. He was a researcher for the “research 60%” focused on “planning methods and implementation of didactic models and artifacts, focused on learner and focused on knowledge construction communities. He is ICT and development Manager at Osel srl –University Spin Off Company. He is a LUGBari member (Linux User Group). He is an Open Source philosophy supporter.

Joan Perrett has taught for over 20 years specializing in marketing and business topics. She has a wide experience of teaching overseas including Tonga, UAE and Mongolia. The recent research undertaken with Dr Wasif Minhas made use of both of their overseas locations, UAE and Mongolia, creating an interesting and worthwhile research topic.

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Puna-Rimam Ripiye obtained a Master degree in E Commerce from the University of Westminster, London. I have been a Researcher administrator for 12 years and e learning content developer for 4 years. At the moment lam a research student with the University of Greenwich, London, United Kingdom.

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Madeleine Rygner Holm, BA in teaching and learning MRH is a schoolteacher and is now studying for a candidate in ICT, learning and organisational change at Aalborg University. MRH has participated in one of our research projects and coordinated the collaboration between researchers and the participating team of teachers. This is her first contribution as a researcher.

Yasunobu Sakamoto, is Associate Professor at Tohoku Gakuin University. He has a long experience in designing CMC systems and is participating in the group.

Guy Saward a broad skillset in technology and its impact, developed over 25 years in industry and academia. This includes time at the University of Hertfordshire's School of Computer Science researching, teaching, and applying work related to Internet technologies, software engineering and change management. His most recent work focusses on enhancing learning using technology.

Saifuddin Khalid is Assistant Professor at Aalborg University. His goal is to systematically explore and circumvent the barriers to the integration and adoption of ICT in K-12 and higher educational contexts. As a change agent, Khalid facilitates school teachers and university lecturers on ICT-integrated pedagogical activity design. He teaches interaction design, usability, prototyping and digital methods.

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Daniel Tocháček is an an Assistant Professor at the Department of Information Technology and Education at the Faculty of Education, Charles University in Prague. He professionally focuses on to use of ICT in education, especially on Educational technology, Didactics of ICT literacy, ICT support of education (e.g. Educational robotics, E-portfolio), Digital learning resources and teacher training in ICT. In the role of researcher or coordinator he takes part in scientific activities and national and international educational and research projects.

Silke Vanslambrouck graduated in 2011 as a teacher in primary education and in 2014 as a master in Pedagogical Sciences. Now she is a PhD student at the Vrije Universiteit Brussel (VUB). The characteristics and performance of learners in an online and blended learning environment in adult education are central factors in her research.

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Ass. Prof. Tone Vold lectures at Hedmark University of Applied Science, Norway, in courses within informatics, systems engineering, organizational learning and knowledge management. She is currently working on a PhD within the area of Enterprise development and worklife research, doing research on involving students in their own learning process to prepare for worklife in organizations.

Craig Wakefield is a Learning Technologist based at the University of Brighton. Having previously worked as a lecturer in FE, he now supports staff in utilising learning technologies across the University. His specific interests included e-assessment & feedback, mobile technology in the classroom & the use of webinar tools.

Lillian Wang is a PHD student in Multimedia University, Malaysia. Her research interest is on Cloud-based learning and blended learning. She is exploring how the

Cloud technology and Web 2.0 tools can be applied into enhancing learning experience. She is also interested in social science, biblical study and psychology.

Andy Wright is an Instructional Designer and the Team Manager of the Technology & Innovation for Learning Team (TILT) at the University of Birmingham. He is also Managing Director of Mirrador Ltd, a UK-based company specialising in development of immersive and interactive virtual environments.

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Inga Zilinskiene is the Assoc. Professor at Mykolas Romeris University. She is an author and co-author of a number of scientific papers, and she has participated in a number of large scale e-Learning scientific research studies. Her current research interests include technology enhanced learning, in particular, evaluation of quality of e-learning.

Keynote outlines

Mathematics Education in the Digital Era

Dr Michèle Artigue, France

The developments in technology have had an impact on many aspects of learning and teaching practices. However, due to the specific relationships between mathematics and computer sciences, mathematics education is has been particularly affected. Both its content and forms are challenged by the technological evolution. Since the emergence of computer technologies there has been much research and innovation to address these challenges.

In this presentation, I will briefly review the history of these efforts before discussing the potential offered by current knowledge and experience to cope with the current challenges to mathematical education posed by the new digital era. This involves looking at new educational conditions, resources, affordances and responsibilities.

The Use of Brain-Compatible Learning in an e-Learning Environment

Prof. Johan van Niekerk, South Africa

Brain-compatible learning is an approach to education which is based on the underlying 'biology of learning' instead of 'simply following traditional practices'. This educational approach stems from a combination of neuroscience and educational psychology and was first made possible by advances in brain imaging during the 1990's. Brain-compatible learning is not a formalised education approach or 'recipe for teachers', instead it provides a 'set of principles and a base of knowledge and skills upon which we can make better decisions about the learning process'. While the effectiveness of education based on brain-compatible learning principles have been proven in a classroom environment, very little knowledge exists regarding its use in an e-learning environment.

This presentation provides a brief overview of brain-compatible learning principles and then demonstrates how these principles can be used in an e-learning environment.

Educational ICT for Cognitive and Personal Development of Students: Opportunities and Threats

Stanislav Štech, Czech Republic

Modern educational ICT represents a new tool for managing knowledge and learning to influence thinking. Although ICT can provide new opportunities, it can also lead to the discontinuity of previous mental functioning. The relation between tool, object of an activity, its goal and its meaning has been the subject of much research (Vygostski, Engestrom, Rabardel, Cole, Kozulin etc.). This research has helped us understand the possible impact of the current digital education wave.

The presentation will focus on following issues:

Digital education has the potential to become a practical tool in information processing (easy searching, classification, clustering) and in modelling some learning content and settings – and to be much more effective than learning without ICT.

However, the stored information itself doesn´t represent knowledge. Knowledge is a final result of activities from the learner, involving other people as well as everyday and formal (conceptual) cognitive and personality pre-requisites. To give an example: the best use of a foreign language dictionary is that of a man knowing the language well enough to be able to select the information given and to anticipate “what he/she has to seek“. The capacity of anticipation seems to be crucial in the use of ICT as well.

Some applications of ICT in education ignore this difference and tend to present new digital elements as “products” to students, the “process“being eclipsed behind the scenes. This means that the positive role of some algorithms, elementary memory operations, useful errors etc., and their contribution to more complex knowledge activities (task resolution, problem solving, and creative solutions) seem to be ignored.

It appears that the effective use of ICT for learning requires demanding psycho-didactic analysis. From the point of view of the curriculum structure, it is important to consider the subject matter based on the knowledge of cognitive and developmental psychology so as to avoid some pitfalls. For example, conceiving ICT implementation as a playful amusing activity without overcoming the obstacles of the cognitive work necessary for conceptual knowledge, or the ill-conceived use of ICT with regards to age and level of expertise of individual students.

Such analysis has to precede any curricular design reform if we want to speak about a successful digital education era.

Research Papers

An Investigation about the Usage and Impact of Digital Video for Learning

Athra Al Awani, Alain Senteni and Abtar Darshan Singh
Hamdan Bin Mohammed Smart University, UAE

Abstract: The main mission of a good educational system is to reach the attainment of well stated learning outcomes, and ensure learners reach the highest level of knowledge and skills needed for the 21st century. It is commonly agreed that technology is a critical tool enabler towards such ideals. Video, in particular, can be a fundamental instrument of education transformation, if used in a way that promotes creative and collaborative use among teachers, while accommodating different learning styles, increasing engagement and excitement among students. This study aims at exploring the usage of digital videos in teaching and its impact on the learning process, both from teachers' and a learners' perspective. It investigates teachers' beliefs about the use of video in their teaching and learning practices, the difficulties they face, as well as strategies used to improve the use of videos in classroom. As for learners, it looks into their satisfaction and motivation to use the recommended videos and the impact on their learning. The research finds that there is a high relationship between the efforts taken by teachers and students' learning, engagement, and overall quality of the classroom experience. The research also sheds light on the need for a web-based video sharing platform that supports the curriculum in UAE public schools, showcasing and appraising best teaching practices in Arabic. Besides, it is highlighted that teachers need solid professional development programs to effectively and pedagogically integrate video technology with curricula as well as skills and knowledge on how to create their own videos suitable for the technological platforms and learning philosophy of current educational systems.

Keywords: video technology in education, video sharing platform, ICT in education, impact of videos on learning, teaching and learning process, educational video, web-based video services

Relational Reasoning: An Educational Experiment Promoting Digital Diagrammatic Thinking

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Abstract: This paper reports on an educational experiment promoting relational reasoning as a form of argumentation with graduate students of ICT in learning. Relational reasoning includes working with mind maps, concept maps, use case diagrams, decision trees, flow diagrams, dialogue maps, situational maps and more. More broadly we can say that relational reasoning consists firstly of using nodes and arcs to represent and overview interrelated meanings as visual networks and secondly allowing the interaction with these networks to generate new dynamic perspectives on the content. The educational experiment consisted of four dedicated lessons introducing different diagramming techniques to students of ICT in learning and supporting them in using these techniques as part of their reasoning and analysis in relation to their semester project. A core example tool was ArcForm that is a general-purpose relational reasoning notation and has been explored as a notational foundation for e-learning systems (Allsopp 2013, 2015). The paper draws a pedagogical insight about the importance of illustrating how tools are useful rather than emphasising their broad usefulness.

Keywords: relational reasoning, design/teaching intervention, ArcForm

Possibilities and Barriers for e-Learning in Primary School in Denmark

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Abstract: How much are we using e-learning in primary school in Denmark? What are the barriers? What are the benefits? Why do we not use e-learning even more? These questions have been the focus for a one year national investigation conducted by ATV, The Danish Academy of Technical Sciences. The investigation included interviews with Danish researchers, persons from the ministry, teachers, students, and e-learning companies. The overall purpose was to make recommendations on how to accelerate the digital transformation of the Danish primary and high schools education system. In this paper, we combine some of

the preliminary findings from the interviews with answers to a small questionnaire sent out to 19 Danish e-learning companies. We also add our own observations and visions for how e-learning could be used and which potentials we see for the near future. One major observation is that generally the attitudes to e-learning is positive: Denmark has political goals about access to machines, infrastructure, and internet at every school. There is dedicated substantial funding for schools buying e-learning material, and local successful e-learning companies such as Area9, EduLab, and Clio Online with international footprint and covering 90% of all schools in Denmark. Despite the many positive factors, which contribute to accelerating the use of e-learning, we also found others, which slow down the transformation: Lack of evidence of the benefits from e-learning tools, doubt about whether it is possible to gather evidence in learning, and higher demands for evidence for e-learning tools than for other educational tools. There is also a missing trust and missing communication among stakeholders. We also observed a lack of vision on how digitalization can go beyond "PDFing" a book, and, finally, we met a fear that using Big Data for personalization of the teaching/learning process will be used to stereotype education, or will only be used to save costs.

Keywords: e-learning, primary school, national investigation, stakeholders, evidence, barriers

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Learning Styles and Access to Virtual Learning Environments in Academic Performance

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Abstract: This study focuses on the issue regarding student-centred teaching and learning. Based on the acknowledgement of students' learning styles, we tried to identify indicators which might enable us to relate students' learning styles to academic performance results as well as to the frequency of use of a virtual learning environment (VLE) used by the institution which the sample subjects participating in this study belong to. The research questions guiding this study were as follows: Are there any relations between students' learning styles and the frequency of accesses to the institution's VLE? Are there any relations between students' learning styles and academic performance? Are there any relations between the frequency of accesses to the institution's VLE and students' academic performance results? In order to answer the above research questions, we defined the following aims: identifying the sample subjects' predominant

style; assessing the influence of subjects' learning styles on their learning results; assessing the influence of subjects' learning styles on the frequency of access to the institution's VLE; assessing the influence of the frequency of access to the VLE on learning results. This study enabled the identification of learning styles and the search for indicators which may allow the establishment of a relation between the learning styles of a sample of 51 undergraduates from a Portuguese public higher education degree course and their learning results, as well as the frequency of their access to the virtual learning environment (VLE). The data concerning learning results and the frequency of access to the VLE resulted directly from consulting the institution's databases associated with the VLE, whereas the data regarding learning styles was obtained after conducting the Honey-Alonso CHAEA survey, also integrated in the institution's VLE. From the results obtained stands out the fact that the majority of the sample subjects have a predominant reflexive learning style. As well as this, there are a high percentage of undergraduates with higher learning preferences in more than one style. With regard to academic performance, the results show that both the final classifications mean and the mean of the course units in which the students obtained a passing mark were higher among the students with a predominant reflexive learning style. The highest mean of the number of accesses to the VLE was observed among the students with a predominant pragmatist learning style. The correlation between the variables associated with the learning styles and the mean of students' marks is low or very low in all situations. This study may reveal to be of great importance, as it enables the obtainment of indicators which facilitate the understanding of the relation between undergraduates' learning styles and the use of VLEs within a formal teaching and learning context.

Keywords: learning styles, virtual learning environments, academic performance

An Axiomatic Approach to Instructional System Design Based on the Dick and Carey Model

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Abstract: In This paper we have introduced an axiomatic approach to Instructional system design based on Dick and Carey Instructional Design model for developing an online learning course on Intellectual Property Rights. Dick and Carey model is one of the successful and straightforward models for design and development of instructions based on a systems approach, but there are some limitations to

follow the various phases of this model in a stepwise manner. So at the first step, we decompose the elements of this model to some basic elements and building blocks. Then each element can be designed and developed separately based on experts' opinions. Based on this approach, we have implemented an instructional design procedure for a training course on Intellectual Property for a target community composed of graduate students in department of entrepreneurship in our university. The results show that with this axiomatic view on individual blocks of Dick and Carey instructional design model, we can easily approach the results of full D&C process. In order to develop this axiomatic approach, at the first step we applied a need assessment analysis based on the requirement of target community, comprised of identification of the problem based on a questionnaire survey, gap analysis, content analysis and technology analysis. In the second step, a learner analysis was done to identify the type of target community including prerequisite knowledge and skills and Learner Motivation. In the third step, Identification of three instructional goals was done, and at the last step, we designed the evaluation tools. We concluded that departing the model into basic blocks, performing each block as a separate task, and then collecting them all together in a final step can effectively achieve the D&C model, while preserving the beneficial of a complete model. We also derived some implications as a recommendation for designing the above mentioned course.

Keywords: e-learning, instructional system design, axiomatic approach, Dick and Carey model

Socratic Flipped Classroom: What Types of Questions and Tasks Promote Learning?

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Abstract: Socratic questioning stresses the importance of questioning for learning. Flipped Classroom pedagogy generates a need for effective questions and tasks in order to promote active learning. This paper describes a project aimed at finding out how different kinds of questions and tasks support students' learning in a flipped classroom context. In this study, during the flipped courses, both the questions and tasks were distributed together with video recordings. Answers and solutions were presented and discussed in seminars, with approximately 10 participating students in each seminar. Information Systems students from three flipped classroom courses at three different levels were interviewed in focus groups about their perceptions of how different kinds of questions and tasks supported their learning process. The selected courses were

organized differently, with various kinds of questions and tasks. Course one included open questions that were answered and presented at the seminar. Students also solved a task and presented the solution to the group. Course two included open questions and a task. Answers and solutions were discussed at the seminars where students also reviewed each other's answers and solutions. Course three included online single- and multiple choice questions with real-time feedback. Answers were discussed at the seminar, with the focus on any misconceptions. In this paper we categorized the questions in accordance with Wilson (2016) as factual, convergent, divergent, evaluative, or a combination of these. In all, we found that any comprehensible question that initiates a dialogue, preferably with a set of Socratic questions, is perceived as promoting learning. This is why seminars that allow such questions and discussion are effective. We found no differences between the different kinds of Socratic questions. They were seen to promote learning so long as they made students reflect and problematize the questions. To conclude, we found that questions and tasks promote learning when they are answered and solved in a process that is characterized by comprehensibility, variation, repetition and activity.

Keywords: flipped classroom, questions, tasks, Socratic questioning

Analysis of the Student's Interaction Using Videostreaming at University Physics Classes

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Abstract: In the context of incorporating information and communications technology (ICT) tools in the School of Engineering at the University of Buenos Aires, videostreaming is used as a communication resource in a Physics I course on b-Learning for problem solving and practical classes. It allows synchronous conferencing, which is increasingly becoming an integrated part of the teaching-learning process and facilitating teacher-student and group communication. The bachelor in engineering -in a six year programme- is organized in massive classes in the first years, so one-to-one synchronous interaction and students' engagement and motivation are difficult to achieve. With the objective of revealing students´ different ways of interaction, videostreaming classes have been recorded and every instance of student participation has been analyzed. The following questions are proposed so as to define categories of analysis: what is the kind of participation that occurs in video streaming sessions? How do students and teachers use this communication tool? And how is this tool integrated into the teaching design? A descriptive longitudinal research was

carried out to answer the above-mentioned questions. Moreover, the Physics course design is evaluated so as to understand how the tool was implemented, and to signpost the relevant resources. Videostreaming was applied as an additional tool in the Physics class to enhance discussion of theoretical concepts and to resolve problems with the guidance of the teacher. It allows the interaction with a large number of students in a very clear and concise way, thus achieving better interactions than those in a traditional face-to-face classroom. It has proven to be an effective tool for engaging students in active learning in massive classes. It makes students feel more motivated to ask questions. From the point of view of learning, this tool allows students to review and construct theoretical concepts, especially complex ones. Not only is the learning process of new content facilitated but also is the acquisition process of scientific vocabulary, necessary for students to express their own ideas and doubts. Students are challenged to communicate in writing with the teacher and with other students in this context, which is not possible in face–to–face classes.

Keywords: videostreaming, action research, physics classes, interaction, flexible learning

Investigating the Impact of Blended Learning on Learning English

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Abstract: The integration of blended learning in teaching English at The National School of Engineers of Tunis (ENIT), Tunisia through the introduction of a multimedia courseware (DynEd) in the curriculum, is hoped to improve the proficiency level of future engineers. This paper is a report on a case study focusing on the experience of implementing DynEd within the scope of the Support Programme for Quality (*QIP*) in education. The study focuses on ENIT PhD students taking DynEd courseware along with a blended learning situation. Empirical data consist in pre-test and post-test data from DynEd records manager. Moreover, a questionnaire is administered to tease out the students' perceptions of a blended learning course, the teachers' role and the synchronization of face-to-face class with DynEd courseware. The results will be used to illustrate aspects of the blended program outcomes and student's perceptions of the teaching methodology embedded in DynEd, the technological tools and the impact of the blended learning environment on their level. This study adopted statistical and quantitative analytical procedures for analysis. The results taken from DynEd record logs indicate that students' proficiency levels in English improved. This is

supplemented by the personal reports which indicate that the students felt that they have improved at the level of fluency and accuracy. The paper ends with the study results and recommendations for further research and for teaching in a blended learning context.

Keywords: blended learning, courseware, progress reports, adaptive learning/assessment, perception

Critical Reflective Practice in Digital Pedagogy: Embracing Creativity in Problem-Based Learning Environments

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Abstract: This paper is a qualitative narrative examination of undergraduate students' experiences in a fully online problem-based learning community. The author describes how three key elements interact - Creativity and Arts-Based Inquiry, Critical Reflection and Online PBL Community and then investigates Digital Moments as an example of best practice in developing high quality online learning environments. A community of 90 undergraduate students in three sections of 30 participated for 12 weeks in a blended course using flipped classroom video podcasts, online discussion boards using webKF, as well as weekly synchronous Adobe connect video conferences. Through this combination of modules, students developed their creativity and critical reflective skills within a problem-based learning online community. The theoretical framework is based on Brearley (2000) who explores the role of creativity in an academic context and Barone (2006) who focuses on arts-based qualitative inquiry and pedagogy. Further it refers to the works related to critical reflective practice of Griffin (2003), Hickson (2011) and Higgins (2011). The pivotal work of Schon (1987) as well as Greenwood's (1992) critique of Schon are included. Specifically, the paper describes how the PBL learning environment allowed factors to emerge that were necessary to develop a critical reflective community, and the transformative learning space that emerged by allowing students opportunities for creativity, intuition and greater self-direction. Using the concepts of "Digital Moments", students created Digital Narratives to describe their experience as adults in fully online learning communities. These digital stories were collected as artifacts including photos, artwork, musical selections and prose. Students' descriptive narratives of learning are chronicled in a problem-based learning digital environment. Best practices in digital pedagogy are explored through a qualitative

account of the creativity, arts-based inquiry and critical reflective practice that have essential roles to inform online learning communities.

Keywords: critical reflective practice, creativity, digital pedagogy, problem-based learning

Authentic Storytelling in a Blended Learning Environment

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Abstract: Engaging students in a blended learning environment can take many formats. Amongst them are collaborative projects that are based on real experiences. Authentic stories should center on a common theme, in our case cross-cultural encounters. The objective was to teach the concepts of cultural intelligence and cultural distance in an innovative way. Six classes of an Executive MBA programme had to create authentic stories and illustrate them by means of animation or other forms of digitalisation. In total 202 digital stories were analysed in our research. We looked at the technical implementation and also at the content in form of participating cultures, gender, theories and outcomes. The stories were accompanied by a questionnaire to assess the characters (actors) of the story. It was based on relevant cross-cultural and negotiation frameworks in order to guide the discussion of the results in a meaningful direction. The analysis of the outcomes, which served as starting point for online class discussion, suggest that cultural intelligence in form of willingness to adjust during a negotiation is a predictor for a successful outcome. Even more important is a humane orientation which can also be described as relationship or affiliation with attributes such as modesty and caring. Performance orientation is the strongest predictor of all. From a technical perspective, findings suggest that social networking platforms are more suitable than standard LMS for communication. Students rated the usefulness of the authentic project for their learning on average as 6.7 on a scale 1-7. At the end of our paper we suggest 'Sequence and Timeframe' of such project.

Keywords: authentic storytelling, blended learning, cultural distance, cultural intelligence

Engage the Students with Learning: A new Approach for an old Challenge

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Abstract: The transition to Higher Education can be challenging for some students, not just the practicalities of becoming the 'responsible adult' coping with day to day living coupled with the excitement of new found freedom, but educationally too. Many know "Uni will be different", realise the expectation of being an 'independent learner' but observations have indicated that sometimes this is where their knowledge and or motivation ends. Feedback from our 2013/14 NSS identified a growing level of concern from the students themselves regarding the commitment and engagement from some of their peers. The focus of this paper is to determine whether it is possible to manage expectations of being an undergraduate student, by demonstrating the level of commitment that will be required, before applying and or enrolling with any HEI. Our challenge was to design a fully online learning environment offering a positive and effective experience that could influence the epistemological beliefs of prospective students. The outcome could be that their beliefs are reinforced, maybe changed and possibly in some cases a realisation that they are not ready or willing to change. Sponsorship by Widening Participation at our Institution enabled a small team with diverse skills and experience to find a collaborative approach to this project. Acknowledging that MOOCs are a game-changer for HE offering large-scale availability, free access and useful analytics, we used their concept to design a holistic Business course. Participants were able to access course notes, watch lectures online and discuss issues with fellow learners. They were permitted to start where ever they wished and then progress through the topics before culminating in a decision by the learner either to leave the course or collaborate with others on a joint submission. The design gave the learners a unique insight to the subject and our Institution's approach to learning.

Keywords: collaboration, student-engagement, online learning environment, curriculum design

Anthropomorphic Faces and Funny Graphics in an Instructional Animation may Improve Superficial Rather Than Deep Learning: A Quasi-Experimental Study

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Abstract: Information about what visual elements in instructional animations enhance learning via mediating effects of elevated engagement is largely lacking. In this study, high school students (n = 41) interacted in a laboratory with a roughly 6-minute-long, black-and-white, instructional animation with "emotionally" enhanced graphics. The topic was biological wastewater treatment. The enhancements included a) adding static faces for two schematic visual elements and b) changing the neutral appearance of a fish and a river bed to funny appearances. The participants' learning outcomes (assessed by retention and transfer tests) and the participants' state engagement (indexed by generalized positive affect and flow levels) were compared to data from a group of comparable students interacting with the same animation with neutral graphics (n = 37) in a previous study. The two groups did not differ in state engagement (flow: d = -0.16; positive affect: d = 0.03) and transfer test scores (d = 0.13), but there was a small trend favoring the enhanced graphics in the retention test, when corrected for pretest scores (η^2 = 0.038; p = .095). Qualitative data suggest that the graphical enhancements might serve as memory cues during the test phase for some participants. The small effect of the enhanced graphics on retention may thus be of cognitive, rather than of affective, origin. This study demonstrates the importance of considering emotional manipulations in future research.

Keywords: multimedia learning, animations, emotional design, flow, positive affect, e-learning

MOOCs: The Promise of Meeting the Need of Flexibility for the Adult Learner?

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Abstract: In line with the emergence of MOOCs, the expectations of students' ability to conduct their own learning processes emerged emphasising the advantages of flexibility in time and space; a promise of meeting the needs for the adult learner (Knowles, 1972). In this paper we discuss which student roles emerge from this setting. In previous work, we pointed out challenges regarding teacher roles and how different knowledge domains influence the educational design of learning activities (Andreasen and Buhl, 2015). Reflecting on preliminary results from an international collaborative research project on MOOCs in Asia and Europe, we noted that many of the examined MOOCs were developed in relation to national issues of solving local educational challenges combining local instructional designs with the overall vision of user flexibility. Online learning activities has often in general been divided between either facilitating communities of learning or supporting individual and independent study, but initiatives of combining these approaches are evolving (Anderson, 2008). Likewise, the concepts of e.g. instructional design, didactic design, and learning design have different roots, but may in their current use overlap and offer new possibilities of thinking educational development (Mor et al., 2015). This paper further examines the diversity of learning activities in MOOCs, with an empirical basis in 12 case studies on MOOCs in Asia and Europe (Kim, 2015) pointing at how instances of 'self-directed learning' are orchestrated in various ways?

Keywords: self-directed learning, MOOCs, learning design, flexibility, adult learner

Perception and Utilization of Facebook by University Students: Case Study

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Abstract: Interest in students learning engagement and utilization of social software applications forms the philosophical core of the long-term research which has been conducted at the Faculty of Informatics and Management, University of Hradec Králové within the frames of national and specific

educational projects. Academicians are striving to reveal how students perceive and utilize new possibilities of Web 2.0 applications like social nets or learning management systems. The goal of this paper is to map real situation relating to utilization of social applications, in this case utilization and perception of Facebook with focus on students´ active engagement. As for the research tool, the survey with a questionnaire was applied with five groups of sixty-seven full-time students of Applied informatics, Information and Financial management bachelor study programmes. Utilization of Internet and social applications are connected with technological readiness. Social applications are seen in accordance with literature review in their features that enable a wide range of interaction, collaboration and sharing materials and ideas among users. But findings from our research are not so promising; surveys do not prove such students´ involvement and call for further discussion. Findings show that 94 % of students sample use Facebook for both personal and study purposes. But less than half of them can see potential in Facebook.

Keywords: Facebook, social media, collaboration, university students, case study

User Evaluation of Geography Website

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Abstract: Another pursuit of scholars to motivate students and get them actively engaged into the learning in the environment of blended way of teaching/learning process is presented. The paper brings description of the process of website analysis from first impression through specialised tasks, evaluation based on the level of satisfaction to the final recommendations. The research area represents interdisciplinary field of developing geography knowledge and digital competences in university students via usability testing of geography websites by students themselves. Last year a research on incorporation of web-design user-testing method into the language learning process was run with students of Applied informatics and Information management study fields. Current research is a follow up stage comprising students of non-computer study field. Testing of websites offering games and quizzes on geography topics will be conducted with full-time and part-time students of Tourism management during their subject called Cultural studies on Africa and India in both environments virtual platform of learning management system and face-to-face classes. The goal of this paper is to describe a pilot phase of the whole assessment process of one of the selected websites called Shephard Software in detail. This pilot testing is supposed to reveal potential pitfalls which could be detected so that user testing of websites by students of Tourism management could be adapted accordingly to reflect

needs and abilities of students with different computer competences, with different experience and behaviour. The sub-goal is to compare the outcomes and determine suitability of incorporation of websites into the process of education and define possible modifications in the content and structure of usability forms. The discussion raises questions relating to adaptation of user-testing forms, selection and a number of analysed websites.

Keywords: geography, usability testing, user satisfaction, didactics

Promoting Learner Awareness and Autonomy Using an Online Learning Platform for University Chinese

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Abstract: The paper will present how an Online Learning Platform for University Chinese I (CHLT1100) which was developed by the Independent Learning Centre and the Department of Chinese Language and Literature at The Chinese University of Hong Kong helps to promote learner awareness and autonomy in the learning process. The platform was first launched in 2014 and so far, a total of 2,556 students have used it. User feedback which was very positive was collected via a focus group study carried out from late 2014 to early 2015. Preliminary analysis suggests that the platform is able to: (1) heighten students' awareness towards the structure of their written language via the presentation of the characteristics of Chinese grammar through comparison; (2) enhance students' knowledge on Chinese grammar through the presentation of the detailed explanations on controversial terms and learning guides on various topics ; (3) encourage independent learning among themselves by engaging students to develop individual learning goals and reaching them through the pace they are comfortable with; and (4) stimulate students' interest in further studying the subject matter through the presentation of theories and the analysis of current language use and patterns. The paper will conclude by summarizing what makes online learning platforms like ours work and providing further improvement suggestions.

Keywords: independent learning, elearning, learner autonomy, Chinese grammar, Chinese language

Moving Away From Comfort Zones: Working in the Community with Teacher Educators to Promote e-Learning Classroom-Based Research

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Abstract: Teacher educators are considered by many as a source of hope and leaders of change in education, especially in challenging times and contexts. It is little wonder given the responsibility they have to form future teachers of potentially, generations of young people over the next half-century. Being a model, guide and promoter of effective teaching practices increasingly involves e-learning-based tools. With the advent of e-learning has come tremendous pressure on teacher educators to change their established ways by adopting ICT tools in their daily practices. Research in the last decade has indicated the enormity of the challenge to change teachers' practices with regard to ICTs. In our experience, promoting the integration and choice of effective e-learning practices among teacher educators, has been an even greater one. To reverse this trajectory, we have sought to establish an alternative scenario. In this paper, we report on a 5-month Action Research Study conducted with teacher educators in the context of an English Pedagogy Program in Chile. Self-selected teacher educators were encouraged, guided and supported in a virtual community space to conduct their own classroom-based research involving social media tools, in order to address the challenges they were facing in their teaching. The study is framed by our beliefs in sociocultural theory, the power of community meaning-making along with reflective practice to lead to social transformation and learning. This Action Research builds on and was inspired by our earlier study in this context that led to an adapted TPACK model which underlined the connection between teacher educators e-practices and sustained changes to those of pre-service teachers. Using a variety of ethnographic tools at the level of the Action Research and the classroom-based studies, we describe how this project led to new understandings in the use of e-tools in Teacher Education and the influence they had on learning and practice on several levels.

Keywords: teacher education, communities of practice, TPACK, critical thinking, self-directed e-learning

E-Learning From the Point of View of Students of Elementary School Teaching

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Abstract: The starting point for the collection of the data and subsequent writing of the article was the agreement of EU Member States on promoting creativity and innovation of education through new ICT tools and teacher training. Professional teacher training is one of the EU priorities in the first cycle of the strategic framework for European cooperation in education and training ('ET 2020'). The research described in this paper focuses on the preferences of e-learning types among students of elementary school teaching with respect to selected factors, such as form of study, age, year of studies, gender, study program, etc. Primarily two major research problems were addressed: i) *What types of e-learning are preferred by the students of elementary school teaching?* ii) *Which factors influence the selection of certain types of e-learning?* A secondary/additional research problem was the question of impact of different levels of intelligences based on Gardner's Theory of Multiple Intelligences on the perception of e-learning among students of elementary school teaching. A questionnaire with high reliability score α = .87 was used as a research tool. It shows that the perception of e-learning is not influenced by any of Gardner's intelligences. The same conclusion can also be reached when the determining variable is gender and year of studies. Students of teaching frequently diverge in opinions concerning preferences of e-learning types regarding the form of study. It is preferred the least among students of full-time form of study and most preferred among students of combined form of study.

Keywords: e-learning, preferences, the theory of multiple intelligences, elementary school teaching

Taking Making into Schools through Immersive Professional Learning

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Abstract: Globally, the Maker Movement is gaining momentum and finding its way into educational environments – primary grades to college and university. Defined as a convergence of emerging technologies (i.e., 3d printers, CNC tools,

etc.) with the DIY (Do It Yourself) culture, the Maker Movement has captured the imagination of hackers and home crafters, encouraging them create innovative and creative items with a focus on using, learning, and applying practical skills. When taken into schools, the Maker Movement invites educators and their students to engage in active production rather than passive consumption of products, media, materials, and objects (Martinez & Stager, 2013). In formal learning settings, Making should be considered both a domain of study as well as pedagogical orientation. This paper shares findings from three years of an immersive professional learning approach, introducing Making to over 2500 teachers situated in diverse settings, including rural and urban western Canada and rural and urban Tanzania. We use the term immersive professional learning to refer to full day, participatory, hands on learning event that encourages active participation. Our approach requires the facilitator(s) to model both the process and the content so participants can learn by experiencing design thinking, prototyping, and reflection. Findings for this paper are drawn from participant workshop evaluations and reflections, author observations, thematic analysis of participant design sheets, and post participation emails which share ways in which Making has been taken into classes. Of significance is how the authors have taken key understandings of the face-to-face immersive professional learning and adapted them to an online environment. The online version of Taking Making into Schools was commissioned by two provincial government agencies, working together to imagine ways to disseminate professional learning into Making more broadly, recognizing access to online learning might be the best scalable approach for supporting transformational pedagogical change and integrating Making into classrooms.

Keywords: Maker, immersive professional learning, online learning environments, transformational change, MOOC

Technologically Capable Teachers in a Low Technology Context

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Abstract: Developing countries lacking the capabilities, funds and the human resources are compelled to improve the digital literacy rates of its task force through educational initiatives. This paper focuses on an in-service teacher education (TEd) project, The *TechAge Teacher Project* (TATP), which aims to equip teachers in Tunisia with the technology skills for teaching. Five English language teachers, recipients of this initiative, are studied to trace the process of their

transition to the low-technology context in their schools. Questionnaire and interview data indicate that teachers show great dedication to implement some of the ideas/skills received in the training. They strive as technology-capable teachers to integrate technology in their day-to-day practice despite the constraints of the low-technology situation. Their accounts unveil their rationale and motives for using technology in their teaching, and the strategies they use to accomplish their goals. The findings highlight the teachers' resourcefulness and sense of mission as to changing their learners' attitudes towards technology use. Finally, recommendations are made for the emerging professional community of technology-capable teachers in the way of building networked community of practice to facilitate the dissemination of ideas on the integration of technology in education and how they can be translated into action.

Keywords: teacher technological pedagogical knowledge, 21st century skills, low-technology context, teacher transition to e-learning, technology integration, professional networks, Tunisia

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Knowledge Management Methods in Online Course Development

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Abstract: From the very beginning, the evolvement of knowledge management has been closely associated with e-learning. E-learning is one of the instruments of knowledge management widely used by companies and universities for knowledge dissemination. In the system of university management, knowledge management methods are used to address objectives of innovative development. The pinnacle of knowledge management is the support of innovative efforts of teachers and researchers. In a university, such efforts embody the development of online courses that is essentially the creation of an innovative product, where the end product, an online course, represents the scientific and methodological solutions. The e-learning technologies and methods have become for a long time an everyday tool used to support the educational process in top-ranked universities. The scientific novelty of the project is the generation of a knowledge management methodology for the development of inter-university online

courses. Teacher community faces a paradoxical situation where many universities are willing to support global free access to their educational materials by means of OER and MOOCs platforms. However, the development of inter-university online courses is, in most cases, the initiative of a team of teachers. The paper considers knowledge management levels for thee-learning course development.

Keywords: e-course development, knowledge management, open resource, e-learning collaboration

Repurposing the Learning Environment: Using Robots to Engage and Support Students in Collaborative Learning through Assessment Design

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Abstract: This paper outlines the setting up and the implementation of a multi-mode blended learning environment driven by an assessment design. The technological blend comprised access to robots and an online group space. The pedagogical blend included the assessment design and teaching and learning practice informed by current research taking place in the School of Computer Science at the University of Hertfordshire. Learners were provided with access to the research centre and the robotics house to help progress and complete the group based assessment and supplemented by class-based learning. The overall aim was to repurpose the learning environment and shift the emphasis from teacher-centric to learner-centric practices in order to motivate and engage learners in authentic group based assessment. Additionally, prominence was placed on learners sharing work on their assessment as it progressed using a mini-project approach. This constructively aligned with the assessment and the subject delivery. In this learner-centric environment learners alongside the teacher administered feedback to students on their work as it progressed. This was intended to provide an opportunity for learners to develop their understanding and skills and take the necessary corrective action. Learner attitude was captured quantitatively by means of a questionnaire. Qualitative data was obtained using learners own reflections of their experience authored by students when explaining their answers to questions posed on the questionnaire. Overall learning was measured using the learner's performance on the assessment. There are some interesting findings including learner views on the assessment design, how access to the robots and the research centre supported their learning and the learners overall perceptions of learning in the multi-modal blended learning

environment. These findings will add to the debate on how we engage with and support learners who are growing up in a digital world and provides an example of how we can do this by taking a research informed teaching approach to the practice of learning driven by an assessment design using robots.

Keywords: robots, research-informed-teaching, research-led-learning, collaborative learning, assessment, human- robotic-interaction

Students' Perceptions about Learning Management Systems in Education: Case of Zimbabwe

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Abstract This paper investigated the postgraduate students' perceptions about Learning Management Systems (LMS) tools in elevating pedagogical practices. This was after observing that despite the wider embrace of Information and communication technologies (ICT) in higher education, the uptake of such ICTs as the LMS tools was still at its infancy in the developing African contexts such as Zimbabwe. Furthermore, the students' LMS perceptions are limited in literature where much relates to the technical issues of the LMS and less on the role played by the institutional structure in influencing students' perceptions about the ICT resources. Both quantitative and qualitative data were collected from a single university case's postgraduate students who were selected using the purposive sampling technique. Of the thirty administered, twenty-seven paper based questionnaires were successfully completed and returned. Additional data were also collected from the same cohort of students grouped into nine focus groups with at least three students in each group. Although there were indications of satisfaction with ICT enabled learning, the students also revealed many concerns, which require to be addressed by the institutions prior to selecting and implementing future ICT based learning technologies. Emerging from the findings are concerns relating to the issues of LMS tools availability, accessibility, usability and compatibility, themes which were neither individual nor technological but institutional. The findings have an implication on the higher learning institutions that are challenged to be more cognisant of the institution's environment and structures if added value is to be realised from the implementation of ICT resources in education.

Keywords: postgraduate students, LMS, pedagogy, higher learning, developing country

E-Learning in Africa and the Implication of the new Partnership for Africa's Development (NEPAD)

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Abstract: The New Partnership for Africa's Development (NEPAD) has convincingly initiated the inclusion of e-learning in much African school. NEPAD is a program of the African Union (AU) that thrives of putting Africa in the path for socio economic development. The NEPAD e-Africa Commission is the NEPAD Task Team responsible for developing and implementing ICT projects, one of which is the NEPAD e-Schools Initiative. The aim of this research is to explore the extent to which the incorporation of technology in teaching and learning has so far benefited teachers and learners in Africa. The objectives of the study are to highlight the benefits of using e-learning system to find out whether new technologies have enhanced teaching institutions in Africa.

Keywords: NEPAD, ICT, e-school, African Union, Africa

Implementing Machine Learning on a Big Data Engine for e-Learning

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Abstract: Due to high volume, velocity, and variety (referred to as "3V") of data production, the term "big data" has recently emerged. Because of such fast data growth, Data centers of educational institutions are seemingly exploding as well. Therefore, big data is making its way to the field of E-learning. Nowadays large educational institutions feel the urgent need to analyze this flood of data to provide students with higher quality of services. Despite the fact that there is huge volume and variety of data with high velocity of production, the existing traditional methods are unable to analyze such data. In other words, there is little done on implementing learning analytics on big data engines. The author created a scalable machine learning system on a cluster of three machines suitable for large dataset operations using big data engine and implemented an early warning process with machine learning techniques. The dataset was obtained from online and semi-online courses from The University of Tehran. Many features like access

time, history of access and history of actions of students were extracted and used for the classification task. A parallel distributed classification process was run to predict students' success and failures. It offers a fast, scalable and in-memory process with apache Spark. Eventually, the research compares the efficiency of proposed method with current and common methods'. The results reveal that our model had a high classification accuracy and the larger the dataset, the more efficient our process will be. It also discusses a new term "learning analytic" and "big data" that are completely new and worth reading. My paper contains worthy information about implementing ELearning data mining on big data engines.

Keywords: eLearning analytics, big learning data, eLearning data mining, apache Spark, education

Using Anaglyphs in Descriptive Geometry

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Abstract: "The use of e-learning and modern technologies is an integral part of teaching descriptive geometry" (Rankowski and Minaruth, 1979). Teachers often create Flash animations, websites and other interactive materials for their students using special tools and software; e. g. Cabri, GeoGebra or Construct 3D (Garciá et al, 2007). All these materials should support development of spatial imagination. However, "this is the ability most students lack, which results in having problems with understanding simple tasks in descriptive geometry" (Gittler and Judith, 1998). Thus, Monge projection is not a favourite topic for them. This paper continues the article (Ferdiánová and Poruba, 2016), in which paper model of basic tasks in Monge projection, designed as supportive material for teaching geometry, were presented. The aim of the paper is to introduce interactive models for Monge projection, which are very easy to use in e-learning, as well as showing results from practical lesson in which they were used. Models of simple tasks were created in dynamic program GeoGebra, anaglyphs were used for better visualisation of geometric relationships in space. Results from practical lesson were processed with using basic statistical methods such as Wilcoxon test.

Keywords: Monge projection, Anglyphs, e-learning, spatial imagination

Collaborative Environments in Software Engineering Teaching: A FLOSS Approach

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Abstract: Open development has emerged as a method for creating versatile and complex products through free collaboration of individuals. This free collaboration gathers globally distributed teams. Similarly, it is common today to view businesses and other human organisations as ecosystems, where several participating companies and organisations co-operate and compete together. As an example, Free/Libre Open Source Software (FLOSS) development is one area where community driven development provides a plausible platform for both development of products and establishing a software ecosystem where a set of businesses contribute their own innovations. Equally, open and informal learning environments and open innovation platforms are also gaining ground. While such initiatives are not limited to any specific area, they typically offer a technological, legal, social, and economic framework for development, relying always on people as open development would not exist without the active participation of them. This paper explores the participation of master students in FLOSS projects, while merging two different settings of learning: formal and open/informal education.

Keywords: free/libre open source software, software engineering education, participatory learning, community driven development, collaboration, formal learning, informal learning, open learning

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Collaborative Learning (Online) and the Role of Student Engagement in Higher Education

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Abstract: For each objective in higher education student engagement is a prerequisite. However, many of todays' 'mass' universities lack particularly engaged students. Further, collaborative learning, which is the essence of each learning process, has been neglected in education for decades. We argue that digital technologies can support and foster collaboration (online) which in turn advances student engagement. Over the last decades, technology has tremendously and unforeseeably reorganized the ways we live, communicate and

learn. One of the most promising but also challenging aspects of this change is the social learning approach. Learning in a digital and connected age does not depend on individual knowledge acquisition, storage, and retrieval; rather, it relies on connected learning that occurs through engaged interaction with various sources of knowledge and participation in communities of common interest, social networks and group tasks. Since learning as such, collaborative learning and engagement are strongly influenced by social interactions, technologies like social media can be powerful pedagogical instruments. However, it is not completely evident which factors contribute to a successful collaborative and engaged learning scenario (online). There is still a lack of research concentrating on impacting factors that trigger collaboration and engagement supported by social media in higher education. In this paper we suggest that the functioning of the learning community is one important factor, which has an impact on collaborative learning (online) and subsequently on the level of student engagement. By drawing on the educational team climate inventory (TCI), this paper provides propositions how various factors from the TCI impact students' perceived collaborative learning, perceived learning online as well as their engagement behaviour. Data (N = 48) from a quantitative pre-test that was distributed with an online questionnaire, offer initial impressions for the proposed hypotheses. The results reveal for example that the alignment of goals and support for individual learning have a positive influence on perceived collaborative learning. This paper constitutes a foundation to provoke additional empirical research regarding antecedents that impact collaboration, learning online and engagement in higher education. Consequently, our intention is to analyse, how the positive dynamics of collaboration (online) can be used to engage students.

Keywords: collaboration, engagement, higher education, team climate inventory, social media, online learning

Why do Higher Secondary Students Like Cooperation but Reject Collaboration in an Online Environment?

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Abstract: The purpose of this case study was to investigate the impact of online learning tools on students' attitudes to cooperation and collaboration within a short-term out-class project. After a successful implementation of cooperation into a classroom based learning environment, our aim was to explore students' learning behaviour and strategies while working in teams on an out-class project in CLIL Social Science lessons. The project included both cooperative and

collaborative activities dealing with the financial literacy. For our purposes we chose the environment of wikis (wikispaces.com) as it is an excellent tool for sharing information and building common knowledge. Furthermore, wiki projects can promote the 21st century learning skills (very often called 4 C's) such as critical thinking, creative thinking, communicating and collaborating. Before the experiment, we had to carefully select and define the collaborative skills, which our students were to learn and practise, since collaborative skills might vary into complexity and difficulty depending on the age of the class. The methods of questionnaire and focus-group reflection were used to analyse the contributions from 88 students. At first, the study researches both terms of cooperation and collaboration in an online environment, then the out-class project is outlined. Finally, the study presents the outcomes and findings and provides the close insight into team out-class learning. The study reveals that majority of students are able to cooperate in an on-line environment, however, if we look deeper, it is evident that the rate of cooperation varies a lot depending on attributes such as e.g. student's motivation, learning preferences, their relationships or leader skills. On the other hand, the study points out difficulties the students might have in online collaboration. These findings might be of interests to higher secondary teachers, who are engaged in out-class projects or intend to implement online technologies in teamwork.

Keywords: online cooperation, online collaboration, out-class project, motivation, team skills

Dialogue in Streaming Video

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Abstract: Streaming video is often done with the lecturer talking and showing a digital presentation. Either you can see the lecturer in a part of the screen, or it is just the voice. This is the generic way of recording and streaming video for educational purposes. This paper evaluates a different way of presenting the curriculum; by peers discussing topics. Rather than one lecturer "telling" the listener about a topic, it has shown to be more dynamic to have a discussion amongst peers. The discussion is loosely held over a key word script and can be on a topic or, in this case, it is the solving of a previous exam. The setting has a resemblance to role playing, but is the form of a dialogue more than acting. The preliminary results are overwhelmingly positive. The research is also a part of a larger project called Project ActiveStudent at Hedmark University of Applied

Sciences in Norway. The data is collected amongst the students from a survey using Questback, and group interviews.

Keywords: role play, streaming video, learning, peer discussions, dialogue

E-Learning Ecosystem Awareness and Professional Identity in e-Learning Technology Adoption

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Abstract: Universities adopt e-learning technologies hoping to improve learning and teaching and enhance competitiveness. However, the extent of take-up differs among academic teaching staff and often falls short of institutional aspirations. This research explores the adoption process in the context of a New Zealand university where a learning management system (LMS) is implemented. We draw on two fundamental notions: the learning ecosystem and professional identity to analyse qualitative data. Two exploratory studies are described, both conducted as parts of a longitudinal insider action research project. The first draws on focus group data from faculty based staff, both teaching and technology support, who are required to adopt the new e-learning technology. The second comprises communications from the central unit charged with facilitating the implementation of the new LMS institution-wide. By comparing data from faculty teaching teams and the central learning technology team, we provide insights into conceptions of the e-learning ecosystem, professional identity, and expertise that shape communications. We provide a series of practical and evidence-based recommendations for enhancing the adoption process.

Keywords: e-learning, learning ecosystem, technology adoption, professional identity, higher education

Mobile Learning Spaces for a Mobile Generation: Redesigning the Classroom

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Abstract: Higher education learning spaces are coming under increasing scrutiny. Some leading commentators say that the way in which universities were originally designed no longer caters to the needs of 21st century education. According to Keppell and Koskinen (2013) "The design of spaces to support the generation of

knowledge by students themselves is an important yet neglected field. We need to re-conceptualize, re-design and rethink the use of space." A number of universities have implemented major structural projects to create learning spaces that facilitate collaborative learning experiences that are typically not possible in large lecture theatres. Examples of such initiatives involve the use of round tables or lab benches, flexible/movable seating, extensive new wireless technology, and room configurations that increase opportunities for peer interaction. All of this, however, comes at a significant financial cost depending on the extent to which changes are made. There are, fortunately, opportunities for relatively small-scale refurbishments that may help to create learning spaces and learning experiences more suited to today's mobile generation. This paper describes how, informed by learning space design principles and staff survey data, one Irish university upgraded a selection of standard flat classroom layouts into areas that facilitate active, collaborative, and mobile-enabled learning approaches. It discusses why certain physical and technical elements were prioritised and how specific design principles from the learning space literature were interpreted and realised. This case study describes how staff responded positively to the redesigned space. It aims to contribute to the under-researched literature on how learning spaces might potentially impact students' learning outcomes. It also includes lessons learned from the design experience and outlines plans for upcoming initiatives that may be of interest to other institutions.

Keywords: learning spaces, 21st century, next generation, net generation, active learning, mobile, classroom, design

A Pedagogical Design for ICT Supported Cross-Age Peer Interaction

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Abstract: The present paper is an account of a design-based action research study. The research question focused on how to create a pedagogical concept for ICT-supported peer interaction that enabled cross-age students to share experiences and knowledge in relation to internships. Internships in higher education are a natural booster of the elusive concept of professional identity. Students return from internships with a better understanding of what they do, know and are professionally. The learning that takes place for the intern remains individual and is only shared with a supervisor. The present study is based on the idea that internship students' individual learning could be shared with younger

peers through online interaction. In the context of a bachelor programme in Northern Denmark, the concept was implemented as discussion forums embedded in the local LMS. In these forums, the students engaged in discussions of professional matters and accounts of daily practices in internships. The analysis of the forum interactions, a survey and a focus group interview revealed that the students perceived the concept as a meaningful activity. The key findings centered on issues regarding: responsibility, relevance and roles. The students felt a strong sense of responsibility toward each other in providing meaningful content and frequent activity and replies to posts, which served as a source of motivation. The question of relevance relates strongly to the timing of the activity, as well as clear expectations and purpose. To the cross-age students, tutor/tutee roles could have provided further direction and purpose of the interaction, but this was not initially part of the concept. This research gave insight into the creation of a pedagogical cross-age concept supported by ICT that could benefit practitioners and researchers in higher education.

Keywords: computer supported collaborative learning, cross-age peer, peer learning, peer interactions, professional identity, communities of practice, internship, higher education

Prediction Model for Success of Students at University Level

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Abstract: Success of university students in subjects they study could be significantly improved by a smart organization of their study plans, especially when prerequisites, i.e. formal requirements on subjects' attendance order, are not applied. Smart planning is represented by a wise choice of priorities for various duties within involved subjects. Frequently, students chose to stop attending a particular subject to gain more time for study of other subjects. However, this could lead to an extended study time or even termination of studies due to a chaining effect of failures. Subject failures are often caused by poor prioritization of assignments considering the overall assignment study load. In summary, student success is often threatened by the lack of information about the difficulty of subjects as well as proper continuity of learning required skills in a given study program. In this paper we propose a prediction model based on conditional probability constructed from historical data representing success of the students within a particular set of subjects. This model improves study

success by helping the students to evaluate their capabilities and by suggesting the right choice of priorities. The proposed model includes the description of conditions and data requirements needed to provide valid predictions. The model is designed to provide information about the probability of passing a particular subject for a student considering both historical data for subjects as well as a student's personal history. The application of the model is demonstrated on a real-world study program showing some preliminary results. We note that this approach requires relatively high utilization of IT (Information Technology) support and e-learning tools, as the model itself and its possible future extensions require good quality data. This problem is also discussed in the paper.

Keywords: university education, student success model, subjects result interdependence, conditional probability

The use of Mobile Devices for the Elderly as a Possibility for Digital Inclusion

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Abstract: Society is constantly changing. More attention on the quality of life has led to an increase in the elderly population in recent years. Therefore, new opportunities are being offered and created to address the cultural, social, and economic changes resulting from higher life expectancy. One way to improve the quality of life would be through digital technologies, such as mobile devices. Mobile devices are ever more present in daily life, enabling the possibility of communication and interaction, as well as increasing the speed of information. Older people are increasingly seeking to learn about how to use mobile devices such as smartphones and tablets. In Brazil, the Federal University of Rio Grande do Sul (UFRGS), offers a course for seniors called TecMovI: Mobile Technologies for the Elderly. In this course the older students learn how to handle digital technologies, primarily their communication and interaction features. This article aims to map of the difficulties, abilities, and profile of the elderly who are interested in learning how to use mobile devices in the TecMovI course. The research is both qualitative and quantitative. Qualitative data was analyzed according to Bardin's (2009) methodology. Quantitative data was calculated such as the average and standard deviation. The study included 19 older adults with a mean age of 67.44 years, only 5 of which were male. The main reason participants stated that they enrolled in the TecMovi course was to learn how to use a mobile device to stay updated and communicate with friends and family living far away.

Students had different mobile devices such as smartphones (30%), laptops (47%), and tablets (23%). The older students who did not have mobile devices stated their interest in purchasing one in the next year (48%). With these results, it is possible to see the increased interest of older adults in using the latest digital technologies to be digitally and socially included in the world.

Keywords: elderly digital inclusion, mobile devices

Electronic Education in Mathematics Teachers Training

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Abstract: Electronic education in the field of teaching mathematics means the management of the educational process with the aid of electronic tools. The use of digital technology in the educational process is a significant motivator. The digitisation of educational materials corresponds with the current trend of the Next Generation Learning Challenges (NGLC). The educational process in mathematics is innovated by using computers and mathematics educational software. These modern digital technologies enable the development and strengthening of mathematical knowledge, guide pupils and students to work independently, and teach them self-control. Modern digital technologies also show possible uses of mathematics in other scientific fields to pupils and students. Especially in technical fields, the understanding of graphics programs, such as AutoCAD, is necessary. Geometrical training with the aid of modern digital technologies allows us to demonstrate mathematical proofs, formulate the properties of geometric objects, and construct various geometric objects using digital instruments that replace the conventional method (ruler and scribing compass). Computer geometry uses different tools compared to the traditional geometry. Constructions made with the help of the computer are not only modern and popular but also exact and prompt. Pupils and students appreciate these qualities during lessons as well as in their homework. The computer has thus replaced the conventional drawing on paper. Modern geometry is interactive and dynamic. The geometry program user can influence the situation on the screen and change the parameters of the objects. This paper will focus on the use of computers in teaching geometry. This area is important for the education of future experts and for their technical practice.

Keywords: electronic education, teaching mathematics, computers in teaching geometry

An Online Language Learning Program for Students in Aviation Departments

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Abstract: This study is the first phase of a project that aims to improve the technical English level of students who study in 10 vocational schools in 10 different cities providing training and education on aircraft maintenance. The actual English level of these students is not enough to achieve Aircraft Maintenance License and become a certified staff since syllabus of these vocational schools do not include technical and general English. Therefore, students must self-study to develop a good level of both general and technical English. The first phase of the study aims to offer online English language training for the students of vocational high schools. This training was created as a separate course and students were asked to study on their own with their course books and a Learning Management System. A course book that has an online LMS was chosen and provided for the students who attended 10^{th} grade. Before the training, the students were given a placement test and their levels were found to be A2 according to Common European Framework of Reference for Languages (CEFR). The students were informed about the course, the enrolment process and the syllabus. LMS system did not include the same units with the course books so a detailed syllabus that matched online activities and the units in the book was prepared. An English instructor became the admin in the system and followed their progress and gave students some assignments and quizzes every week. The study lasted for 8 months and at the end of the course, students were given a proficiency test to check if online studies contributed to their English. The students were also given a questionnaire on their perceptions of the online study.

Keywords: online language learning, learning management systems, technical English, aviation, technical English

Inquiry Based and Blended Learning Using Geographical Information System

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Abstract: The methods of geospatial data processing are being continually innovated, and universities that are focused on educating experts in

Environmental Science should reflect this reality with an elaborate and purpose-built modernization of the education process, education content, as well as learning conditions. Geographic Information Systems (GIS) have the dominant role in geospatial data processing. Students of the Environmental Science study program are learning GIS analysis in order to manage conflicts of interest within the country, and to assess the impact of human activity on the environment. The contribution is focused on teaching GIS, based on real geospatial data and methods, which is implemented through integrated learning. In an effort to get closer to the approach used for real problematic task solving, it is essential to include several interconnected systems in the blended learning. Firstly, the Learning Management System, which is important for the realization of distance education. Secondly, the desktop GIS, which is used by students for creation, capturing, editing, analysing and visualization of spatial data for real problematic task solving. Thirdly, the Global Positioning System, which enables the capturing of data directly from the landscape. The placement of observed objects and phenomena allows students to realize their own mapping of elements and components of the landscape, and to update and verify the existing map layers. The last system employed is the GIS Server that allows students to share and publish the results of related topics of their work, and also helps students to develop their skills in group work cooperation. Students work with professional tools and real data, and the education process has an interdisciplinary approach which develops a wide range of knowledge and acquired skills. The real problem tasks, which are solved during the education process, are student-driven to a significant degree. The role of the teacher as a classroom manager is specific. A similar approach in education can also be used in other branches of the science.

Keywords: inquiry based learning, GIS, GPS, LMS, blended learning

Dynamic Models Using 3D Projection

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Abstract: Dynamic models have become common in mathematics classrooms. However, their use is often limited to work in plane. This despite the fact that modern technology offers the possibility to work in space. The author presents the potential that 3D projections using anaglyphs offer when teaching geometry in space. He builds on his experience from work with a dynamic geometry programme as well as from his experience from pre-service mathematics teacher education. Solid geometry is one of the fundamental parts of mathematics. The ability to solve geometrical problems is closely connected to spatial imagination. Currently we can observe that pupils and students at all school levels find it more

and more difficult to solve spatial problems, as they cannot visualize, make a mental image of the situation. Contemporary children do not manipulate with objects as much as children did in the past and thus lack a sufficient idea of their properties and behaviour. This paper presents those functions of a freeware dynamic geometry programme – GeoGebra that allow 3D projections using anaglyphs. Anaglyphs have been known since mid-19th century. The first learning materials using anaglyphs were published decades ago. Despite this these tools have not become widespread. One of the reasons might be that teachers and learners were confined to the use of ready-made materials that could not be modified. Teachers also could not create materials on their own. Thanks to dynamic geometry programmes this is no longer true. Teachers and pupils now have the chance not only to create their own anaglyphic images and films but also to manipulate with the created objects – to view them in space, rotate them and change their properties in real time by manipulating parameters. The aim of this paper is to point out some possibilities these technologies have for mathematics and mathematics teacher education. The paper presents different types of using anaglyphs in mathematics classrooms.

Keywords: 3D models, anaglyph, GeoGebra, stereoscopic projection, stereometry, mathematics, education

Work With Models in e-Learning Environments

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Abstract: PISA study has defined several key areas to be paid attention to by teachers. One of these areas is work with models. The term model can be understood very broadly, it can refer to a drawing of a chemical reaction, a plastic model, a permanent mount (taxidermy) to advanced 3D projections. Teachers are no longer confined to teaching materials and aids available physically at schools. Thanks to information technology, models can be included in lessons almost without any limits. However, work with models is very specific due to the simple fact that a model always differs from what it represents. Efficiency of education using ICT can be affected negatively in case that work with complex models requires high level of abstraction which pupils are not capable of (Harrison, Treagust, 2000). Jančaříková (2015) points out that – due to the demands on upper secondary pupils – children must be taught how to relate models to real objects from very early stages. Linking an object to its model – isomorphism is the basis for successful work with models. Work with models thus must be developed systematically and consistently and included into teaching of younger learners. The scope of work with models in natural sciences is gradually increasing. There

are some phenomena that are ungraspable without a model, e.g. DNA double helix. However, the fact that we are able to project these models to pupils using information technology does not mean that pupils will be able to understand them. In this paper we want to point out that not enough attention is paid to work with models (not only in the Czech Republic) – methodology of work with models does not exist and is not taught to pre-service teachers. The paper classifies types of models we come across in lessons, describes basic differences between objects and reality they represent and proposes possible ways of systematic inclusion of models into teaching

Keywords: models, projection, science education, 3D projections, interactive models

Digital Learners in Higher Education: Exploring Technology Ownership Patterns and Learning Engagement

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Abstract: Recent studies into *'digital learners'* have pointed to the high level of digital skills which many UK and US based students entering HE are now demonstrating (White & Beetham, 2013; Pew, 2013). However while students may display high levels of functional skill or competency in digital media this is often evidenced in a narrow corridor of involvement with social media and may not indicate a well-rounded digital identity. Using digital devices informally for leisure opportunities does not necessarily foster the digital literacies required to develop the critical thinking and learning skills of university graduates. This is in line with Beetham & Sharpe (2014) who suggest that: *'digital literacy looks beyond functional IT skills to describe a richer set of digital behaviours, practices and identities*.' This perspective of wide-ranging digital competency but indeterminate levels of digital literacy amongst undergraduates is explored through the outcomes of two recent surveys, one undertaken in Australia (2012-3) previously reported at the Ascilite conference (Jefferies,2013), and the other at a German university in 2013-2014 which is the focus of this paper. This paper examines the evidence for digital competency and literacy displayed by German university students in support of their studies. In a quantitative study using an online survey tool based on previously published and widely acknowledged metrics, students were asked about digital ownership and their technology use during their HE studies. The questions asked about their use of common hardware

platforms and popular software. The outcomes from the German study and the earlier Australian study are considered in the context of recent research into *'digital learners'* in the UK. Overall, the students' use of technology for learning, whichever country they were studying in, tended to be personally focussed, lacking evidence of active contribution to producing and critically evaluating material. In short, their contribution to digital engagement could be termed as surprisingly passive and consumerist (cf. Cochrane and Antonczak, 2015) rather than a pro-active engagement.

Keywords: technology ownership for learning, technology in HE, digital engagement

Learning Personalisation Approach Based on Resource Description Framework

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Abstract: The paper is aimed to analyse the problem of learning personalisation applying Resource Description Framework (RDF) standard model. Research results are two-fold: first, the results of systematic literature review on RDF application in learning are presented, and, second, RDF-based learning personalisation approach is proposed. First of all, systematic literature review was conducted in Thomson Reuters Web of Science database and using Semantic Scholar search tool. The review has shown that RDF data model is based upon the idea of making statements about web resources in the form of subject–predicate–object expressions. These expressions are known as triples in RDF terminology. The subject denotes the resource, and the predicate denotes traits or aspects of the resource and expresses a relationship between the subject and the object. The review revealed that linked data and triples-based RDF standard model could be successfully used in education. On the other hand, although linked data approach and RDF standard model are already well-known in scientific literature, only few authors have analysed its application to personalise learning process, but many authors agree that linked data and RDF-based learning personalisation trends should be further analysed. Original RDF-based learning personalisation approach is also presented in the paper. According to this approach, RDF-based personalisation of learning should be based on applying students' learning styles and intelligent technologies. The main advantages of this approach are analyses of interconnections between students' learning styles and suitable learning components (i.e. learning resources, learning methods and activities, learning tools and technologies etc.) based on using pedagogically sound vocabularies of

learning components, experts' collective intelligence, and intelligent technologies (e.g. expert evaluation, ontologies, recommender systems, software agents etc.). This pedagogically sound RDF-based personalisation approach is aimed at improving learning quality and effectiveness.

Keywords: learning personalisation, resource description framework, linked data, learning styles, intelligent technologies

The Impact of Lecture Capture on Staff's Teaching Practice in a UK University

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Abstract: Lecture capturing is rapidly being deployed in Higher Education Institutions (HEIs) as a means of increasing student learning, experience and inclusivity. As research begins to accumulate on the effectiveness of Lecture Capture (LC) in HEIs, it appears that LC is largely beneficial to students' learning and their academic performance. It is less clear, however, how the use of LC has impacted on lecturers' own teaching practice, as studies that explore this issue have only begun to surface fairly recently. Has the use of LC impacted on lecturers' design and delivery of learning activities and programme of study? Has it influenced their ways of giving student feedback and support? Does it have any impact on their knowledge and professional values? Understanding how staff use these systems to develop their own practice is an issue that has largely been unexplored but it is important to enhance reflexive teaching. This study aims to provide a deeper understanding of the impact of LC on staff's teaching practice, through a web survey of academics (n46) in an English University. The descriptive statistics revealed the use of LC impacting four areas of teaching activity (delivery of lectures and supporting learning; assessment and feedback related activities; developing effective learning environment and their approach to student support and guidance; engaging in their continuous professional development and their approach to incorporation of research and evaluation of their practice) as well as their core knowledge and commitment to professional values. Relatively less impact on the area of designing and planning learning sessions was reported. It is concluded that there is strong evidence to indicate that the LC has impacted academics' core knowledge, their commitment to professional values and certain teaching practices. The findings have important practical implications, as they provide HEIs with a new set of evidence to build a convincing case for

implementation, promotion, and sustained use of LC as tool to enhance teaching practice.

Keywords: lecture capture, teaching practice, higher education, learning technology, UK professional standards framework

Instruction Outside the Classroom: Mobile, or Ubiquitous Learning?

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Abstract: The paper describes the design of a coherence model of instruction, which aims at a better understanding of curriculum in context and knowledge retention in long-term memory. The coherence model is built on four pillars: cooperative learning, activating teaching methods, instruction in authentic environment, or more precisely in educational expositions and spatial learning strategies. These strategies use a nonlinear representation of knowledge, such as dynamic semantic networks. Based on the principles of a coherence model of instruction an educational application for tablets was designed, developed and evaluated. This application serves as a virtual guide through the Ostrava Zoo and contains the following features: navigating through an educational exposition, multimedia and interactive information board, visualization of dynamic semantic networks, electronic worksheets and continuous testing of the pupil´s contextual understanding of the actual curriculum. The evaluation of the coherence model of instruction and the virtual guide was carried out by three methods: observing the pupils´ behaviour and work, a pedagogical experiment and evaluation questionnaires. This paper presents the results of the third method, evaluation questionnaire. One of the conclusions suggests that mobile technologies and mobile learning are not yet a completely ideal medium of instruction in outdoor educational expositions. These deficiencies can be partially overcome by specialized static devices installed directly at the place of the individual educational activities, wearable technology, the Internet of things, devices for augmented or virtual reality and finally ubiquitous learning.

Keywords: mobile learning, museum education, spatial learning strategies, ubiquitous learning

A Technique to Enhance the Motivational Appeal of Moodle: Design and Evaluation

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Abstract: Motivation is a causal factor of learning. This article presents the design and implementation of a motivational technique that builds on the confidence and satisfaction dimensions of the ARCS (Attention, Relevance, Confidence and Satisfaction) motivational model. The proposed technique was embedded in Moodle so as to enhance its motivational appeal by depicting students' progress in a course. However, it can be easily integrated into any other learning system as long as it is able to track a learner's actions within it. In order to calculate knowledge progress, the use of two different measures is proposed: the Time-based Progress Calculation (TPC) and the Grade-based Progress Calculation (GPC). An evaluation study of a Moodle course was conducted in the context of an introductory programming course in order to examine the effectiveness of the proposed technique and students' feedback on it. Three groups were randomly formed. The first two groups had access to a different version of the course in Moodle, while the third had access only to the course's webpage. The study was conducted over the first six weeks of the course, up to the mid-term exam. On completion of the respective course sections but prior to the mid-term exam, the students of the first two groups had to answer a questionnaire evaluating the attended course. The questionnaire consisted of five-point Likert type questions and was divided into two subcategories: system usability and motivational appeal. The aim of our analysis was to investigate whether our motivational technique was able to stimulate students to study more, increase their motivation, and help them to improve their learning outcomes without increasing Moodle's complexity. The results were encouraging since they indicated that the implementation of the proposed technique into Moodle affected students' motivation and involvement, resulting in significantly higher grades on the mid-term exam, while their feedback about its usability was positive.

Keywords: learning management system, e-learning, progress calculation, motivation, ARCS model

The Relationship Between Emotional Intelligence (EI) and Speaking Proficiency in e-Learning

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Abstract: ELearning is permeating every corner of today's education, language learning in particular. ELearning offers a favorable environment for learning the skill of speaking as well. It furnishes learners with facilities to practice a wide range of speaking activities and a variety of feedback on them. The significance of Emotional Intelligence (EI or EQ), in any type of learning, is undeniable and proved by many. As Darwin posited that emotional expression was essential for survival, it is crucial to consider EI in any stage of the design for the survival of eLearning. Relatively little has been done to highlight the importance of emotional aspects in designing eLearning courses in language learning. Teachers and eLearning course designers need to take into account, among other factors involved, their students' emotional intelligence, which easily can be ignored. Hence, the present study intended to find if there is a significant relationship between EI and Speaking Proficiency of Iranian English Language Learners in eLearning and if such a relationship exists, which of the subcategories of EQ might provide us with a better prediction for SP success. Among 500 volunteered university students wishing to take TOEFL iBT, by administrating Nelson English test, 150 homogeneous participants were randomly selected for the purpose of the study. Participants' ages were between 19 and 22 years old, including both males and females. Firstly, participants' EQ was assessed using Bar-On questionnaire administered on-line. Students then enrolled in a three-month eLearning TEOFL iBT course for speaking on www.elearne.com. At the end of the course, students have participated in TOEFL iBT and informed the researcher of their speaking scores. To analyze the data, Pearson Product Moment correlation coefficient and Multiple Regression have been applied. The results revealed that the correlation between EI and SP is positively significant and among the subgroups of emotional intelligence, the interpersonal aspect provides us with the best prediction for speaking proficiency success in an eLearning course.

Keywords: eLearning, emotional intelligence (EQ/EI), speaking proficiency, language learning

Distance Learning and Home Schooling in the Czech Republic

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Abstract: Legislation in the Czech Republic like in many other countries allows parents to educate their children at home in the form of 'home schooling'. In this form of education children are taught by their parents. This education is primarily based on the use of printed materials. Electronic materials tend to be used only as supplements to more traditional teaching methods, despite the fact that home schooling is a perfect platform for e-learning. This paper presents a case study of the first school in the Czech Republic that provides distance education in the form of e-learning for Czech and Slovak home schoolers. Children enrolled at this school not only have the chance to use traditional and electronic learning materials, they can also consult on questions and queries with their teachers online. The paper discusses the legislative frame in which this sort of distance learning is set and looks at the different learning methods and techniques, the methods used to assess students, and makes a current evaluation of the whole process. Attention is paid to the e-learning environment and different forms of e-learning support that this school provides to its pupils and their parents. The project presented here in the form of a case study is an innovative example of good practice showing how e-learning and distance learning can be used efficiently with children of primary school age, i.e. an age group among whom distance education is not usual. Distance education is a solution not only for parents interested in home schooling but also for parents of gifted children and children with health disabilities. It enables the provision of centralised support, i.e. one centre can provide teaching to children that are very distant from each other. The school we present here provides e-learning support to about one-quarter of Czech home schoolers. We believe that the practices of the school described in this paper could serve as a good model for other schools in different parts of the world and be a valuable source of information for researchers interested in e-learning aimed at children of primary school age.

Keywords: home schooling, individual learning, e-learning, Moodle, elementary school

Three Levels of Feedback in Adaptive eLearning

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Abstract: There is no doubt about the significance of feedback in all human activities. As far as instruction is concerned, feedback is a necessity. In the classic full-time study, feedback is often limited to the evaluation of students' resulting knowledge and skills. Developed e-learning and online instruction expands its possibilities. Through the use of LMS with the possibility to adapt the study material to suit the student's personal characteristics, which also records all of the details concerning the student's behavior during instruction, as many as three levels of automatized feedback can be used (which makes it possible to adapt the entire education process). The first level is the reaction of the system to the student's incorrect answers to control questions during instruction. The second level consists of the final adaptive testing of students. The highest level consists of the analyses of the student's behavior during instruction and the verification of whether or not the adaptation of the study material corresponds to the student's determined characteristics. All three levels can lead to the improvement of the education process. As far as levels 1 and 2 are concerned, the modification lies in the adaptation of guiding the student or the changes in the study material. Level 3 is related to the change of the settings of the student's learning activities or the modification of the process of presenting the adapted study material.

Keywords: adaptive instruction, individualized instruction, adaptive LMS, feedback, adaptive loop, student's behavior analysis

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Opportunities and Boundaries of Heuristic Strategies through e-Learning

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Abstract: Our contribution covers a case study of five mathematics teacher-trainees who have participated in an LMS Moodle e-learning course, which focused on the development of selected heuristic strategies – Use of false assumption, Systematic experimentation and Introduction of an auxiliary element. The study describes the opportunities of heuristic strategies and adherent phenomena aimed at didactic competence of future mathematics

teachers in the LMS Moodle environment with the use of devices of social learning, while we mainly observed the changes where thus designed teaching varies from common – contact teaching. The entire course has been drawn into three main activities: adopting heuristic strategies through problem solving; problem posing; and reflecting their sensitivity to using heuristic strategies in solving tasks with their pupils in their own pedagogical training at schools. These activities were realised with the help of classic instruments of Moodle courses – individual work, providing feedback and discussion. One of the results was finding which heuristic strategies the students had mastered before the beginning of experimental teaching, which they acquired in classes and which gave them trouble. The research has also shown that in cases of individual students we may trace certain dependence between the quality of tasks formulated by the students and the quality of feedback provided. Among other issues, the article discusses a potential influence on the sensitivity to using heuristic strategies while solving tasks with their pupils, deduced from the proceedings of the electronic discussions and further from semi-structured interviews, which took place after the teaching process had been completed.

Keywords: heuristic strategy, mathematical problem solving, social learning, didactic competence, teacher training, LMS Moodle

Augmented Reality-Based Learning Systems: Personalisation Framework

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Abstract: The aim of the paper is two-fold: first, to perform systematic literature review of Augmented Reality (AR) learning systems/environments and, second, to propose those systems' personalisation framework based on applying learners' profiles/models and intelligent technologies. First of all, systematic literature review on research topic was conducted in Thomson Reuters Web of Science database. The review revealed that strides are being made in education using AR, although much needs to be done. The possibilities of AR application in education seem to be endless and bring many advantages to students of all ages. Few are creating content that may be used for educational purposes, with most advances being made in the entertainment industry, but many understand and realise the future and importance of education applying AR. Many studies argue that new AR-based learning systems are more effective in comparison with traditional ones. Teachers and students like learning content and activities provided by AR technologies. On the other hand, although the concept of AR has already been

proposed more than 20 years ago, most applications are still limited to simple visualisation of virtual objects onto spatially limited scenes, and the developed systems did not pass the barrier of demonstration prototypes. Many authors agree that personalisation of AR-based learning platforms should be further analysed. Therefore, original personalisation framework of AR-based learning systems is presented in the paper. According to the framework, personalisation of AR learning systems should be based on applying learners' models and intelligent technologies e.g. expert evaluation, ontologies, recommender systems, software agents etc. This pedagogically sound personalisation framework is aimed to improve learning quality and effectiveness.

Keywords: learning personalisation, augmented reality, learners models, intelligent technologies, systematic review

Using the e-Learning Acceptance Model (ELAM) to Identify Good Practice in the Provision of Online Tutorials

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Abstract: This paper seeks to evaluate the usefulness of the E-Learning Acceptance Model (ELAM) in relation to the module TU100 My Digital Life which is offered by the Open University in the United Kingdom. TU100 is only offered as a distance learning module therefore students have no choice in their mode of interaction. A combination of printed and online material is provided with students offered both face to face and online support at regular intervals throughout the module. The ELAM model will be used to evaluate the attitude of students and staff to the use of technology that supports the delivery of the online aspect of the module. Synchronous online activity is supported by a Tutor requiring the student to commit to regular participation in online activities. Neither Face to Face nor online Tutorial attendance is compulsory but some students are regular attenders at both activities. In order to determine the reasons for student participation the ELAM model will be used to evaluate the factors, if any, which influence their engagement in online activities and to what extent Tutor interaction influences their willingness to participate. One mechanism utilised for delivering online tutorials to the student cohort is a branded version of Blackboard Collaborate called OULive. This provides a stilted environment which depends primarily on a whiteboard based application and audio technology to support the online tutorial process. Applying and evaluating

the ELAM model will allow the identification of good practice in the provision of online tutorials helping fellow practitioners cope with the demands of online delivery. The paper will conclude by demonstrating that while the OULive tool is dependent on whiteboard and audio technology students who engage on a regular basis do constitute a community of practice and demonstrate that participation in online tutorials as part of their learning experience is a worthwhile exercise. This therefore illustrates a certain level of acceptance of technology in their learning activities. This paper will demonstrate that a good level of support early on in the module to use online material is essential in helping this community of practice to form.

Keywords: e-learning, distance learning, synchronous communication, breakout rooms, problem solving activities

How to Design Affect-Aware Educational Systems: The AFFINT Process Approach

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Abstract: Computer systems, that support learning processes, can adapt to the needs and states of a learner. The adaptation might directly address the knowledge deficits and most tutoring systems apply an adaptable learning path of that kind. Apart from a preliminary knowledge state, there are more factors, that influence education effectiveness and among those there are fluctuating emotional states. The tutoring systems may recognize or predict affective states of a learner and react to them to foster success of an educational process. This paper explores, how techniques derived from affective computing and user-centric design might be applied in intelligent tutoring systems development. An affective intervention is a modification of a standard control path or system behaviour that is a response to user's affective state and aims at providing effective execution of a task (learning). There are several criteria for a good intervention model for an application. A system should make an affective intervention only when required and refrain from intervention otherwise. Interventions should be a natural element of an interaction with application and should be tailored to a user state. The ten step process, called AFFINT, was proposed to design appropriate affective interventions. In this paper the process is adapted to the domain of technology-based learning. The steps of the process are analyzed, providing insight into designing educational systems that react to the recognized or predicted emotional state of a learner. The study is based both on literature review as well as it is supported with a design case study of an

educational tool. The paper shows, that combining affective computing and educational systems is possible and beneficial. The paper might be interesting both for researchers, working on educational processes and supportive tools as well as for developers, aiming at designing effective tutoring systems.

Keywords: affective learning, emotion recognition, affective tutoring systems

The Flipped Virtual Classroom: A Room for Involvement and Engagement?

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Abstract: Students learn best when they are active and engaged. Providing courses via online medium has made this difficult. Although synchronous sometimes, it is still difficult to muster engagement. Several ways of triggering engagement has been used; plenary work with cases and assignments, reflective processes and more. It is only a handful of students that respond. This paper presents a different approach to increase engagement; introducing the Flipped Virtual Classroom. Flipping the classroom has proved to me most effective in face to face education. By making students responsible for their own learning process by encouraging them to contribute towards the lecture and using their own background and experiences, it is possible to increase the involvement and engagement. The paper presents, based on theory on involvement and engagement, and e-learning, different ways of organizing the Flipped Virtual Classroom. Looking at the single factors that make up the Flipped Classroom and adapting this to the online medium, is something that will be tested on a class at Hedmark University of Applied Sciences.

Keywords: flipped classroom, involvement, engagement, e-learning, learning outcome, transactional distance

Promoting Intercultural Communication via a Series of Online Micro-Learning Modules

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Abstract: In view of the global trend of internationalisation, and aiming specifically to support our students on their exchange programmes and to enhance cultural integration on campus with an increasing number of international students, the Independent Learning Centre (ILC) at The Chinese University of Hong Kong has produced a series of online micro-learning modules titled "*Interacting Across Cultures.*" While there are free online learning resources available helping students to improve their understanding across cultures to enable them to benefit from the exchange experience at the academic, linguistic, personal and cultural levels, most of them are mainly from low-context cultures, such as the United States, preparing students for stays in other cultures. Very few, if any, resources are available to cater to the needs of students from high-context cultures, such as Hong Kong and China. Seeing such a gap and motivated by recent research which suggests that meaningful pre-departure preparation significantly increases the value of students' study abroad experience (e.g. Hammer, 2012), the ILC has therefore created a series of five micro-learning modules on the following topics: What is Culture? / Communication Styles / How to Achieve Your Goals / Culture Shock and Other Obstacles / How to Make Sense of Intercultural Experiences. Interested students can complete them anytime, anywhere, and at the pace they are most comfortable with. The content is accessed via interactive webpages on desktops and mobile devices. Supported by appealing visuals, interactive exercises, reflection activities as well as further independent learning resources, the modules can benefit not only departing students, but also all students who want to integrate better with students who come from a different cultural background on campus or who want to increase their cross-cultural understanding for their future career. This paper describes the need for the creation of the modules, the development of their content, as well as some of the design challenges that had to be overcome in the process.

Keywords: e-learning; design; micro-modules; intercultural communication; study abroad; Hong Kong

Open Badges: Acknowledging Soft Skills Acquisition

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Abstract: In 2010 the Mozilla Foundation established the Digital Open Badges concept as a virtual incarnation of physical counterparts such as a paper certificate or a youth organisation merit badge. *Digital* Open Badges offer embedded, verifiable, metadata containing information such as the issuer and award criteria. Open Badges can be used to reward learning, participation or achievement. They can be stored in various online environments, including the Mozilla 'Backpack' and social media platforms. Open Badges have been used to evidence informal learning, professional development, community and voluntary work. This study is part of an ongoing project at a UK Higher Education Institution (HEI) to evaluate the potential of awarding Digital Open Badges in different contexts across the institution. It was decided to trial Open Badges on a programme run by Learning Development staff in the Library to support high achieving students, acknowledging and rewarding soft-skills acquired as part of the programme. Central to the success of the scheme was 'buy-in' from the students themselves; in order that the Open Badges had meaning and value to the recipients, a Participatory Design approach was adopted to engage students in the development process. Participatory Design is an iterative methodology that 'attempts to examine the tacit, invisible aspects of human activity' (Spinuzzi, 2005, p. 164) and incorporates them into co-produced systems. Soft-skills are an important complement to formal education in the 21st Century workplace (Devedžić *et al.*, 2015). Measuring and rewarding 'soft-skills' such as; critical thinking, communication, leadership and team-working, has proved problematic in the past. Key objectives were to establish a set of soft-skills metrics and, a sustainable approach to acknowledging the acquisition of those skills. This presentation will discuss the outcomes from the study, including an assessment of the sustainability of Open Badges as a mechanism for rewarding soft-skills acquisition in an informal setting.

Keywords: open badges, participatory design, soft skills

Social Networking in a Virtual Learning Environment: Analysis of Social Interactions

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Abstract: This article presents the analysis of social interactions of students in a virtual learning environment. The aim is to propose educational activities in distance education that can contribute to social interaction. Authors like Tomaél & Marteletto (2013), Barabási (2009) and Recuero (2009) recognize the importance of social relationships and interactions of the students to the construction of knowledge. Social changes impact the network structures that form from this socialization, both in person and virtual. The methodology was qualitative and quantitative case study type. For data collection were used the tools and Contacts Forum ROODA virtual learning environment. To complete the data collected was used the graphs generated by the Social Map tool. The Social Map shows social interactions carried out in the environment ROODA communication tools. The study included 40 students in a course held in the distance. This course is offered by the Federal University of Rio Grande do Sul in the first half of 2015. The results show that the performance of collaborative activities favors the participation of the most effective mode of students in the class, establishing more cohesive social networks. The social network analysis of the three points that the students could interact more fluently along activities, because of the increase of interactions along the course. It was observed that the last task of the classes the distance obtained a cohesive and participatory group. Therefore, from the analysis of social networks can offer educational activities for teachers, such as plan and carry out collaborative activities since the beginning of the course and motivate students in the use of the virtual learning environment features for social interactions and exchanges.

Keywords: social interactions, group formation, virtual learning environment

Knowledge Generation in Technology-Enhanced Health Exhibitions: Using Eye-Tracking Methods to Understand Audience Knowledge Generation in Health Promotion Exhibitions

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Abstract: This paper presents results from eye-tracking studies of audience interaction and knowledge generation in the technology-enhanced health promotion exhibition PULSE at a science centre in Copenhagen, Denmark. The main purpose of the study was to understand what types of knowledge audiences build in health promotion exhibitions designed to include direct physical interaction. The current study is part of the larger PULSE project, which aims to develop innovative health promotion activities that include a science museum exhibition as a key setting. The primary target group is families with children age 6–12. Health promotion technologies are defined here, as technologies designed specifically for the purpose of health promotion, be they educational or focused on physical activities. The study was conducted in late 2015 and comprised eight families with children in 2nd-6th grade visiting the science centre. Eye-tracking glasses and qualitative interviews were used to collect data. Before entering the PULSE exhibition, one adult in each family group and one child in each school group were asked to wear eye-tracking equipment while interacting with various installations. Primarily adult test persons were chosen because wearing the eye-tracking glasses seemed less of an intrusion for adult visitors than for children. The glasses recorded audio, video and gaze point from the test person's point of view. All members of each group were interviewed briefly following their interaction with the exhibition to understand how they had experienced the exhibition, what they saw as the thematic focus and if they thought they had gained new knowledge from the activities. Results from the project indicated that the participants gained knowledge linked to both health fitness topics and social aspects. Results also showed that the exhibition supported both themes related

to discovering new types of physical activity and themes of collaboration and social family activity.

Keywords: health exhibition, eye tracking, science museum, visitor studies

Fieldwork: Is it a Competitive or Complementary Tool in e-Learning for Tourism?

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Abstract: Market competition through quality in tourism is a challenge for the educational sector. Considering a role of customer-perceived quality and tourists' satisfaction for generating profits in the future, organisations have adopted quality strategies in providing their services. As a consequence, quality management becomes a crucial subject of study for students of tourism. A national perspective on educating for tourism is too narrow for a global tourism market. Cross-cultural aspects of service in tourism require cross-cultural understanding of the teaching philosophy. The service expectations of tourists depend on their national/cultural background. Also service deliverers (e.g. tour operators) have different concepts of service quality depending on their national and cultural environment. The process of education for tourism requires students to be able to understand this cross-cultural context by learning based on an experiment and their own experience. This creates a need for a specific pedagogical approach in many aspects of programme content and methods of its realisation. Fieldwork with students and professors from different countries combined with e-learning would be an innovative methodological approach to improvement of service for tourists. E-learning could be implemented as a complementary method in education as it can stimulate process innovations in education. The purpose of this study is to conceptualize fieldwork as problem-based action-learning and formulate its objective; an evaluation of the educational process based on fieldwork will be identified as a starting point for future improvements in tourism education. Methods applied in this study include: a qualitative approach using critical analysis of literature, observation of teaching programmes for tourism in Poland and benchmarking leading to development of educational effects. Expected results: added value of a complementary use of e-learning and fieldwork in education for the tourism sector will be identified, and educational intangible effects will be described.

Keywords: problem-based learning, tourism education, complementary e-learning

Mobile Gaming Experience and Co-Design for Kids: *Learn German with Mr. Hut*

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Abstract: Recently, game-based learning and mobile learning have become increasingly important for their significant contribution to education. Game-based learning (GBL) environment combines appropriate gaming technology and didactic strategies, in order to provide engaging learning experiences. In addition, interactive mobile learning provides learners with deeper and meaningful learning experiences, which are extremely effective for language learning. As some important researches and learning theories show, innovation in learning is also represented by engaging learners into game design processes, in order to enhance learning through a stimulating and motivating strategy. The aim of the purposed research is to prove the effectiveness of an innovative strategy of learning, combining Mobile-GBL with a co-design methodology. Our research focuses particularly on foreign language learning. In order to provide a deeply involving learning experience, a co-design methodology was adopted for the development of the game "*Learn German with Mr. Hut*". In addition to that, the videogame was built with HTML5. The purposed game immerses 6 to 12-year-old learners in educational challenges focusing on German language learning. The focus group has been engaged in all the phases of the project. During the first phase, co-design sessions aimed to engage pupils into the design process of the game. After the development of the game, the focus group was engaged to test the game. This experiment took place in some Italian schools. The last phase consisted in evaluating questionnaires, which allowed pupils to express their opinions and views about the game. The results of our research reveal the effectiveness of a combined learning strategy, involving co-design methodology and a mobile game-based learning environment. The analysis of the scores of the game highlights the efficacy of our game for learning and teaching German, suggesting how foreign language learning can be successfully enacted in mobile game-based learning environment combined with a co-design methodology.

Keywords: e-learning, game-based learning, mobile gaming, multidevices, Html5, co-designing, language training

Recording, Publication, Testing and Evaluation of Quantitative Knowledge in an e-Learning Environment

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Abstract: One of the burning questions in majority of universities in the Czech Republic is maintaining and increasing the teaching process quality at permanently growing interest in university studies. Implementation of eLearning technologies indeed has been of a great assistance while addressing the stated issue however it is obvious, that conventional text study supports cannot fully substitute direct or mediated interactions of teaching staff with student. The complex rich-media visualization of the tutorial process becomes the absolute necessity for the overall transfer of information from the teacher to students. The issue of key aspects of implementing rich-media technologies at VŠB-Technical University of Ostrava in the Czech Republic is dealt with the MERLINGO Project (MEdia-rich Repository of LearnING Objects). Using rich-media technologies allows to carry out automated complete records of the whole educational process with minimum demands on financial, time, personnel and technological costs and to achieve their immediate access in the environment of LMS Moodle. Testing, evaluation or practicing students' knowledge especially in quantitative subjects such as mathematics or statistics can be also facilitated using LMS Moodle. The module Test, which is a standard part of commonly used e-learning environment LMS Moodle, is not very suitable for developing mathematical or statistical tests because it contains only a limited number of functions that can be used for creating quantitative tasks. At VŠB – TU Ostrava we have chosen the R language and Sweave and Exams libraries for generating quantitative tasks. Texts of tasks are created in the markup language LaTeX. Using the Exams library the tasks can be compiled and exported to PDF format or Moodle XML format. The eLearning methods described above entail a number of both technical and didactic problems and difficulties. The paper pointed out some of these problems and how the authors have dealt with them. The authors also present selected results of research among students who have already passed some eLearning courses containing these methods and tools.

Keywords: quantitative knowledge, rich-media, testing and evaluation, LMS Moodle, Exams library for R

Handling Knowledge Through the iPad: New Engagements in Learning

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Abstract: This paper aims to identify ways in which tablets as handheld technologies create personalized spaces that engage children in learning in new ways. Specific attention is given to the ways in which personalized learning spaces enabled by tablets are embodied through hand-eye-technology relationships, and through engagement with multiple interfaces such as screens (e.g. smartboards, pcs and mobile devices). Mobile technologies are closely bound up with our embodied engagement in the world, as mobile devices are carried and used in close and immediate proximity to our bodies and are navigated through touch. With the ubiquity of mobile technology uses in everyday practices the body-technology relation is increasingly becoming a fundamental ontological condition, as seeing, knowing and perceiving becomes mediated through personalized technologies. Handheld devices thus potentially provide users with dynamic ways of engaging in knowledge that are embodied and tactile. In schools handheld technologies generally follow learners in the dynamics created by spatial organizations of learning which include the placement of tables, chairs and artefacts within the learning space and the infrastructure of movement between them. Spatial organizations that involve mobile technologies such as tablets often contribute to positioning learners as users of technology and producers of knowledge. These personalized infrastructures of learning can be observed through research and understood as processes that shift with different learning aims, school subjects and tasks. Empirical examples in the paper are drawn from two recent research projects in which learning was studied ethnographically through observations and interviews in four lower secondary schools where students used tablets (iPads) as personal devices for learning. Classroom observations identified ways in which the iPads supported students in learning in personalized ways by providing increased bodily engagement in learning. Observations also identified ways in which knowledge was framed in multiple ways through learners' interactions with screens of different sizes.

Keywords: mobile learning, iPads, body-technology relationships

Computers and Multimedia in the Situation of Language and Cultural Diversity

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Abstract: The proposed paper focuses on the issue of developing and supplementing teaching mathematics in linguistically and culturally heterogeneous classrooms using computers and multimedia. The issue of how to support teachers who face the reality of having to teach in a setting where the mother tongue of some learners is not the language of instruction has recently attracted a lot of attention due to the fact that EU countries have to face an increasing flood of migrants. The authors ask if and how the use of computer technologies and multimedia might help in preparation and individualization of teaching materials suitable for use in linguistically and culturally heterogeneous environment, i.e. when both teachers and learners have to cope with a situation when language and culture may be an obstacle to learning and teaching mathematics. The authors demonstrate that meaningful and appropriate use of computer technologies and multimedia may significantly support preparation of teaching materials and their use in lessons. The authors discuss different uses of ICT proposed in the different teaching units developed by members of the project team M3EaL – Multiculturalism, Migration, Mathematics Education and actually used in piloting in 6 European countries (France, Italy, Austria, Norway, Greece, the Czech Republic). They discuss their potential for development of both mathematical competence and communication skills in the language of instruction. The paper also shows the potential of ICT as the source of materials that can supplement traditional printed materials that do not reflect the specific needs of migrant pupils. Examples of concrete didactical units are shown and discussed. The developed materials illustrate the rich potential of the use of computers and multimedia materials both by teachers and pupils. Each of the developed units was piloted by three project partners. Each of the piloting teachers adapted the proposed material to meet the conditions of their own classroom. And it was the process of adapting and piloting the materials that showed the rich variety of possible uses of ICT both while planning and while conducting the lessons. The experience of implementation of these units into lessons also confirm the enormous motivational potential of the prepared teaching units.

Keywords: multicultural environment at school, language diversity, cultural diversity, use of computers and multimedia materials, mathematics teaching

Cultural Content of Mathematics Word Problems in Online Electronic Materials

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Abstract: The paper presents an analysis of non-mathematical content of online teaching materials for mathematics created by Czech in-service mathematics teachers posted on the website www.veskole.cz that serves Czech teaching public as a source of interactive materials to be used on smartboards. It builds on a poster presented on ECEL 2015 conference. The question the author asks is how innovative electronic materials are as far as their cultural, non-mathematical content is concerned? Are these materials a mere conversion of traditional hardcopy textbooks or have its authors gone further, introducing new motives, images and realities closer to everyday lives of their own pupils and of themselves? The author of this paper builds on her research in the area of non-mathematical content of mathematics textbooks (Moraová, 2013) and of problems posed by teacher trainees (Moraová, 2014). This research tries to analyse what images of everydayness pupils come across in lessons of mathematics, in the process of which they absorb cultural norms very often unaware as their attention is focused on solving a problem. The presented research combines qualitative and quantitative approaches. The author analyses one hundred and seventeen activities developed for smartboards downloaded from the website www.veskole.cz. Word problems are classified according to their cultural content and the most frequent images are described and commented upon. The analysis clearly shows that Czech authors of inline materials fail to grasp the chance of introducing new topics and backgrounds and tend to use the most traditional word problems, only making them interactive. This is rather disappointing as the online environment and no intervention from external evaluators should be a very favourable place for innovation of the non-mathematical aspects. The findings of this study are of interest to in-service mathematics teachers planning to develop an online teaching unit, developers of online teaching materials in general, mathematics educators but also policy makers as not much attention is paid to the cultural contents of mathematics teaching materials.

Keywords: electronic materials, word problems, non-mathematical content, stereotypes, construction of social reality, stereotypes

ePortfolios for Entrepreneurs / ePortafolios para Emprendadoras: Design and Development of an Online Distance Course

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Abstract: Supporting entrepreneurship is a frequently used strategy to fight unemployment in Europe as well as in Latin America. New established entrepreneurs in the diaspora often have difficulties to present themselves, their ideas and Curriculum vitae to reach an international audience. One idea for global and affordable presentations is to provide entrepreneurs with tools for ePortfolio construction online on the World Wide Web. English has always been the main language on the web but several studies indicate that problematic learning involving technical activities better is carried out in learners' mother tongue. This study is based on a secondment in the DiasporaLink project where an online course for ePortfolio construction has been designed and implemented in a collaboration between the Stockholm University in Sweden and the University of Development/Universidad Del Desarollo in Santiago de Chile. Two fundamental design concepts for the course are multimodality and bilingualism with Spanish as a complement for more technical sections of the course. The research question that the study aims to answer is: What are important factors in the design of an online course aiming to facilitate for entrepreneurs that want to construct and publish their own ePortfolios? The overall framework for the study has been a Design science setup with three phases where the aim has been to design, implement and evaluate an online course on ePortfolio construction with the use of HTML5 and jQuery. In the first phase design ideas have been gathered from a literature study before the second phase where the actual implementation was carried out. The final evaluation has been conducted in two iterations with the first evaluation done by a small focus group and the second by a NGO supporting unemployed female entrepreneurs. Findings show that both multimodality and bilingualism are promising design concepts for online courses. The first concept is rather easy to implement with new affordable recording options and an abundance of multimedia resources available on the net. The second concept of bilingualism is harder to implement and optimise since different target groups have different levels of English skills. Ideal would be to have everything doubled in all languages but with the problem of a more time consuming and expensive course development. Finally, the handshake procedure is, as always, crucial for an online course where user's first impressions of slow response times and

complicated login procedures seem to scare off presumptive course participants without earlier experience of distance education.

Keywords: ePortfolios, multimodality, bilingualism, entrepreneurs, online education

Effectiveness of Note-Taking Instruction on Student's Reflections upon Their Learning Activity During a Blended Learning Course

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Abstract: The metrics of self efficacy and self assessment were surveyed in order to examine the emotional changes of participants during a blended learning course. Two sets of questionnaires were developed to measure the degree of student's self-efficacy, and to facilitate self evaluation. Participants were surveyed twice during the course, using the metrics mentioned above, and their emotional and cognitive changes were evaluated. The number of valid participants was 54. Scores of metrics between the two surveys were compared. Though most scores for self-efficacy and self assessment decreased, this suggests that participants recognised their actual learning situation well. To illustrate participant's emotional and cognitive changes, causal analysis was introduced. The relationships between scores for self-efficacy and self evaluation in the two surveys were analysed and compared. Also, the impact of improvements in note-taking skills on changes in self-efficacy and self-evaluation were examined using causal analyses. These results show that note-taking activities significantly stimulated the level of self-efficacy and self-assessment when the lecturer's instructions were able to improve note-taking skills factor scores during the course.

Keywords: note-taking, reflection, self-efficacy, causal analysis

Blending MOOCs in Face-to-Face Teaching and Studies

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Abstract: The impetus for this study stems from two opposing tendencies in the current Danish educational system. On one hand, there is a growing demand for improvements in both student satisfaction rates and dropout rates. On the other hand, there have been steady cuts in resources, particularly in terms of hours allotted for lecturers to meet existing demands. In order to design solutions to this challenge, this study collaborated with three educators and their 73 students in a teacher training faculty in Denmark, where Massive Open Online Courses (MOOCs) are already produced and available for teaching integration. The study experiments with different ways of letting MOOCs play supplementary roles in students' study work. The main research question we seek to answer is, thus, how MOOCs can contribute to improvements in teaching quality without increasing the number of lectures, while simultaneously supporting students in obtaining higher degrees of independence in study activities. The data are collected through literature reviews, interviews with the participants and observations of on-campus teaching integrating MOOC content. The resulting mixed data will be analysed using constant comparisons inspired by grounded theory. The paper will categorise former design experiments with MOOCs in blended settings, and, using design workshops and interviews with educators as our point of departure, we will sketch and discuss various models for blending MOOCs with face-to-face teaching and supporting structures for students' independent work in MOOCs outside campus.

Keywords: MOOCs, design-based research, teaching, blended learning, contextual mechanisms, design mechanisms

Virtual Collaborative Research Communication the Impact of Mindsight

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Abstract: The overall research aim is to establish if mindsight can improve communication in virtual spaces, whether the platforms are organisational or in a learning setting. Businesses, organisations and educational institutions etc. utilize virtual teams and virtual enterprises; therefore, the ability of people to communicate effectively in virtual spaces is important. Some problems of communication in virtual spaces have been identified as lack of mutual trust and extensive communication among individuals (De Paoli, 2015; Januska, 2011). This aspect of interaction is because communication in virtual spaces involves people from different backgrounds and there are different expectations. A mental health theory called mindsight has been used extensively in relationships; the theory

specifies that, people must understand themselves first, before being able to understand others. Mindsight facilitates connection with self and others through a combination of insight and empathy; this enables individuals to resonate with their experiences. The theory has not been applied to communication in virtual spaces and it is has been interesting investigating its impact on communication in virtual spaces. A qualitative pilot action research was conducted within a small virtual group of university students using two blogs. The students were divided into two groups between the blogs. All the students had little or no knowledge about mindsight. The first group of students were given some mindsight instructions to follow while engaging with the blog and the second group engaged without instructions. At the end of the interactions, questionnaires were handed to them to evaluate the levels of their communication. From the preliminary evaluation of the students' feedback from the session and the communication pattern on the blog; It was observed that the students that had mindsight instructions communicated more calmly and they were able to accommodate different opinions with a sense of acceptance and focus. The findings suggest that mindsight has the potential of improving an individual's communication levels to be more open to others as a result of self-awareness and integration. This a pilot study and more development of a mindsight virtual communication model will be used for the Researcher's main data collection.

Keywords: virtual collaborative research, virtual spaces, mindsight, communication, virtual communication

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On the Design of Online Learning Environments for Programming Education

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Abstract: Programming is a fundamental and mandatory subject in Computer science programmes at university level, but many students have difficulties to learn even the most basic programming concepts and techniques. Computer science has a tradition of face-to-face *programming huts* where students taking programming courses can explore important programming concepts with instant feedback from human facilitators. In contemporary blended learning where more and more of teaching and learning sessions are given by distance there is a need for online alternatives for self-learning. At the department where this study was conducted about half of the students fail to complete their introductory programming courses and many other universities face the same problem.

Without facilitation, online or face-to-face, and appropriate alternatives for self-learning the fail rates would be even higher. The *N-generation* or the *Digital Natives* that now are entering university programmes are the first generation that has used computers, Internet and online systems since early childhood. Their digital prerequisites are better than earlier generations but at the same time they have higher demands for interaction in online environments. In this study two different online learning environments for self-learning were analysed and discussed to find answers to: *"What are the most important factors in the design of virtual learning environments for self-learning of fundamental programming skills and knowledge?"* The overall research strategy is the case study approach where students' attitudes on the use of online learning systems have been investigated in two programming courses. Data has been collected by interviews, evaluation questionnaires and group discussions. The explored online learning environments in this study are Pearson educations' *MyProgrammingLab* and *Codecademy*. Findings indicate that online systems have to be carefully designed if they should attract the digital natives generation. Some important design factors for self-learning systems found in this study are: unambiguous exercises, clear and well-formulated feedback, user-friendliness, GUI design, multi-modality, gamification and curriculum alignment. Interesting extension of user-friendliness is if the programming exercises have multi-lingual descriptions and if the online systems might be adapted for students with different learning styles.

Keywords: online learning systems, self-learning, programming education, codecademy, myprogramminglab

Personal Digital Video Stories: The Live Image as Engaging Reflection Tool in Vocational Educational Training

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Abstract: The drop-out rate among students attending vocational training institutions is higher than for other forms of education at the same entry level (in Denmark, but also generally in Europe). A recent Danish reform has aided students, who enter the first part of the basic program directly from primary school. However, there remains a high risk for older students, who do not come directly from primary school; and there is a risk of becoming 'school-weary' (in its broadest understanding) in the periods between school and company practice. This paper introduces experiences with students own digital multimedia and

video productions in Vocational Educational Training (VET). These video productions focused on the subjects of their future profession, and increased students' motivation and experience of professional pride. Through a semi-structured literature review, the paper then argues for a research agenda focusing on video productions in combination with digital storytelling, followed by a presentation of the digital storytelling features. The paper concludes with a suggestion to initiate research in what is identified as Personal Digital Video (PDV) Stories within longitudinal settings, while students are at school and in practical placements with companies. This may increase students' social engagement and interest in the subject matter, together with greater awareness of professional identity, which could help decrease drop-out rates for vocational training.

Keywords: personal digital video stories, vocational educational training, video production, digital storytelling

YouTube: A Vehicle for International Collaboration

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Abstract: Technological progress in society is advancing at a phenomenal rate; arguably, education is struggling to keep pace (Martinez & McGrath, 2014). In modern classrooms educators have powerful technological tools available at their fingertips and although there are many examples of innovative uses of these tools (education world, 2015), overall their application is erratic and sporadic at best (Rittel, 2012). One of the reasons for this lag may relate to the pace of technological change itself (Martinez & McGrath, 2014). The latest technological advancements become obsolete before they make it into the classroom, or before their potential for educational application has been tested. Specialist educational software, social media platforms, simulation platforms and hardware all fall within this category. However, there are some advancements that have stood the test of time, thus far. Within the realms of education YouTube is often seen as a resource, an audio visual library or an avenue to showcase educational outcomes (Dunn, 2011). However, it is seldom used as a collaborative tool. This is where it may offer the biggest potential. This paper proposes to explore this potential through a planned international collaborative project involving second year bachelor students, from the United Arab Emirates and Mongolia, undertaking an Innovation and Entrepreneurship course. Between April and May 2015, students in both countries posted short videos of their business ideas on a private YouTube channel, administered by faculties in both countries. Using a qualitative approach

this paper assesses the usefulness of YouTube in facilitating an international collaboration project of this nature. Exploring the potential of YouTube as a tool for facilitating international collaboration may help rebrand its educational application. The fact that YouTube is readily available and easily accessible can also provide new opportunities for a large number of students and teachers to engage in international collaboration.

Keywords: You tube, international collaboration, United Arab Emirates, Mongolia, higher education, innovation and entrepreneurship, qualitative approach, usefulness of YouTube as a tool

Exploring Digital Didactics: An Explorative Case Study on Learning to Teach Online

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Abstract: Online teaching became increasingly popular during the last decennia. Therefore, many teachers face a challenge in combining technology with content and didactical approaches. However, not all teachers have experience with online teaching or the didactical approach towards it. For this reason the 'Digital Didactics' programme is developed in the context of teacher professional development in Flanders, Belgium. 'Digital Didactics' strives to provide teachers with hands-on experiences regarding the didactical possibilities of online teaching. These experiences could be implemented immediately in the teachers' own practice. The programme builds on scientifically supported knowledge on teaching with technology such as the Technological, Pedagogical and Content Knowledge (TPACK) framework. The research question this study addresses is first to investigate the reasons to participate in the Digital Didactics programme, and second how the participants and the coaches are experiencing this programme. Data was collected through qualitative online structured interviews and focus group interviews and analysed by using an inductive approach and thematic analysis. This paper presents the outcomes of the programme and clarifies the identified strengths and challenges of the 'Digital Didactics' programme. There are three main reasons for participation identified, namely: personal, professional and peer related motives. Next to that are the participants' experiences divided into three levels, namely: content level, guidance level and practical level. The experiences of the coaches and participants were found to be similar: they agree on both the perceived merits as well as on the weaknesses of the programme. Conclusively, the study contributes to the knowledge on effective professional

development strategies for online teaching and learning. This can be useful for practitioners or researchers in the field of online teaching and related professional development.

Keywords: digital didactics, online teaching, teacher professional development, technology integration, TPACK

Adaptation of Testing: Yes or no?

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Abstract: In the school environment, terms such as personalization, individualism and adaptivity are becoming more and more frequent. The teacher is faced with a difficult task – try to meet every student's needs and requirements, their individuality and the way and pace in which they learn. The teacher does everything in their power to teach every student what they intend to teach them and what they expect them to know. What options does the teacher have? One of the options is to take different learning styles into account and work with the study material which suits the particular student's learning style – as far as the visual student is concerned, the teacher will need graphs, tables, diagrams or schematic notes; the kinaesthetic student, on the other hand, will require video recordings or practical applications. Another option is to adjust to individual students when evaluating their knowledge, i.e. during testing. How can the "adjusting" be realized? Can it be achieved by adjusting to students' level of knowledge or rather by adjusting to their learning styles? And does this kind of adaptive testing have an impact on better understanding and preservation of knowledge? The paper deals with the issue of adaptive testing and tries to answer the above questions. Our research was aimed not only at the real testing (question – answer), but also at the so-called self-testing. By self-testing we mean repetition of knowledge before the real testing, i.e. when the student goes through different variants of test questions and tries to answer them correctly. The student can answer each question multiple times. After each attempt, they can use "Hints", "Study Material" or "Help", all of which should help them answer the question correctly. For both the self-testing and real testing, an algorithm has been created which takes the student's current level of knowledge into account when selecting the next test question. The functionality of the algorithm was tested on a sample of 9^{th} grade students. The results showed that the improvement in terms of knowledge was apparent mainly in the weaker students.

Even though they still did not match the better students, they moved up a level or two.

Keywords: learning styles, adaptivity, adaptive testing, self-testing, adaptive testing algorithm, motivation.

Securing Trust, Roles and Communication in e-Advising

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Abstract: Students claim to learn a lot from advising and feedback on assignments. This is one of the results in a survey amongst students at Hedmark University of Applied Sciences. Advising is mainly a face-to-face activity. However, with an increasing number of courses being offered online, it is timely to discuss how to conduct advising sessions online and using an online medium. The meeting between the student and advisor contains a number of factors; for instance: eye contact, tone of voice, facial mimic. Many subtle features establish the relationship between the advisor and student. The student needs to communicate the assignment and to trust the advisor, the advisor needs to be reassured that the student understand and trust the feedback. The paper discusses how advising sessions can be undertaken using an online medium, and still maintain the roles, the trust and secure the communication.

Keywords: e-advising, reflection, reflective practitioners, trust, competency

Academic Integrity, Plagiarism, and Mercenary Authorship in Online Learning Environments

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Abstract: Academic credentials and their economic value in the marketplace depend in large measure on an academic institution's ability to monitor and certify that a student has obtained a degree without cheating. That validation has become increasingly challenging and expensive in online courses where faculty never meets the students face to face. Not only can students exchange online identities with other students to mask their activities, but there also exists vast networks of people who write original and unplagiarized papers – for a price. What can be done to ascertain that higher education's credentialing ability

remains untarnished by these forms of cheating? This paper will offer three alternatives. The first alternative is deterrence. As a defensive strategy, deterrence by electronic means is very costly and resource intensive because it is aimed at a moving target. We will look at the big players in this space, including Turnitin, and look at the legal and ethical questions that arise when the presumption of guilt creates an atmosphere of academic doubt in the online classroom. The second alternative is dissuasion. Here the university enacts and publicizes academic integrity and plagiarism policies that find their way into the syllabus of each course. The problem here is policing and enforcement. This goes to the heart of the academic mission: is it the university's role to police for cheating? And what happens in the case of original but mercenary papers? What must the burden of proof be for the university to make a prima facie case against a student who purchased an original paper to submit for a grade? The third alternative is diagnostic. Here the university proactively looks at the type of assignments that generate the greatest breaches of academic integrity, and works with the faculty to develop online assignments that reduce the incidence of cheating. This has the effect of creating a moving target for students inclined to cheat and puts the focus back of the teaching and learning process. This is the most effective method, but requires an instructional commitment to being a learning organization.

Keywords: academic integrity, plagiarism, Turnitin

Examining the Impacts of Social Media Engagement on Learners Motivation in MOOCs

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Abstract: The rapid development of online learning has attracted significant attention, in particular, the development of Massive Online Open Courses (MOOCs). Despite the extensive publicity and popularity, there are many recurring issues and problems raised in the academic literature, one of which is the consistently high dropout rate of MOOC learners. From prior studies on the subject, motivation is a key factor if higher uptake and completion of MOOCs is to be achieved. Increasingly, thousands of learners use MOOCs, each of whom has their diverse motivation. Thus, identifying how course design can motivate students is of paramount importance in stimulating and sustaining online learning behaviour, increase retention and completion rates of students. Currently, there are relatively few studies that address learner motivation in MOOCs. In order to

build further understanding, the goals of the proposed research are: (a) to examine how engagement with social media affects learner motivation within a MOOC; (b) to find out if early engagement on social media before the course begins will motivate learners to start the course and (c) to find out if there are differences between learners' who engaged in social media and those who do not in terms of motivational levels, course engagement, achievement and completion rate. Learners who do not engage in social media will serve as the control group. The study will apply a mixed methods approach, collecting data via questionnaires and course platform tools. Motivation will be measured using modified Situational Intrinsic Motivational Scale (SIMS) questionnaires, based on the framework of Self-Determination Theory. The experimental stage of the study will be conducted within the context of an Entrepreneurship and Innovation MOOC, run on Canvas Platform. Results from this study will give a deeper insight into the effects of social media engagement on learner motivation, achievement, course participation and completion in MOOCs. The results are expected to shed light on the potentials of social media in improving online learning. Also, the study will assist future designers of MOOCs by providing deeper understanding of motivational effects of social media in MOOCs and help in properly defining their roles in online learning.

Keywords: online learning, learner motivation, social media

Pre-Service Mathematics Teachers' Designing Teaching Supported by GeoGebra

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Abstract: The article reports on a design experiment aimed at designing a part of a mathematics education course focused on GeoGebra with the goal to develop student teachers' technological pedagogical and content knowledge. Based on results gained in previous stages of the design experiment reported elsewhere for Sample 1, more emphasis was laid on personal discussions and changes were made in the e-learning part. Student teachers in Sample 2 were given explicit guidelines to prepare proposals for teaching and to peer evaluate each other's work in LMS Moodle module Workshop. The research data consist of student teachers' ($n_1 = 24$, $n_2 = 40$) proposals for teaching supported by GeoGebra and written peer evaluations. The data were analysed in a qualitative way using modified existing frameworks and our Quality Index and then elaborated

quantitatively. The results show a marked trend towards proposals of teaching in which student teachers use the potential of GeoGebra, mainly its dynamic features, and engage pupils actively with technology. There are no low quality proposals for Sample 2. On the other hand, there was no change in the types of goals student teachers set.

Keywords: technological pedagogical and content knowledge, GeoGebra, LMS Moodle, peer evaluation

Wikis in ICT and ICT in Wikis: A Blended Strategy to Engage Students in Secondary Education

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Abstract: Wikis in ICT and ICT in Wikis consist of a "blended" strategy that engages students in Secondary Education. It seems that Wikis form a "promising" environment in Secondary Education and particularly in the obligator course of Information and Communication Technologies (ICT) course. While the concept of Wikis is part of the curriculum in ICT courses in high school (gymnasium), it can also be used as a complementary e-tool which supports the class teacher/facilitator. Here is an implementation of a "blended" strategy combining face-to-face learning with web-based and distance learning. As of 2011, the ICT course is an obligatory, two hour course each week in Greek Pilot Gymnasium curricula among experimental schools and is mainly a project-based. This course focuses on, "ICT literacy," which describes the students' ability to solve problems and participate in our society of modern knowledge with the use of digital technologies, to use communication tools and network services for access, management, embedding, evaluation and information communication. Our rearch focuses on the exploitation of Wikis in the ICT course. During the last three years, Wikis are used in the context of ICT course in the Experimental School of Aristotle University, Thessaloniki, Greece. Students of 13-15 years old participate in the Wiki of the class with their personal account and share material, collaborate, discuss, communicate with classmates and teacher. The ICT course is based on four issues: a) ICT as a scientific technological tool, b) ICT as a cognitive tool, c) ICT as a method to solve problems and d) ICT as a social phenomenon. Our empirical research has been implemented through observations, questionnaires and interviews in order to triangulate our results. The results have showed that Wikis give students the opportunities to develop skills and abilities related to ICT

course curriculum and teacher's "blended" strategy engages them in their learning process. Since teaching of ICT literacy in high school is a clear laboratory educational process, each student's active participation can be considered as feasible. Interaction and collaboration between students, teachers and educational material are continually ecouraged. The Wiki of the class and the school computer-laboratory are the places where students can study, research, actively participate and collaborate in such a way that the exploratory and research approach of knowledge, interactive and collaborative learning and creativity are favoured and encouraged.

Keywords: ICT course, secondary education, Wiki, collaborative learning, blended learning, interaction

School Teacher Professional Development in Online Communities of Practice: A Systematic Literature Review

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Abstract: This study informs researchers of educational technology, teachers, teacher associations and moderators or admins of online platforms who are interested in knowledge sharing among teachers within online communities of practice (CoPs). The continuous professional development of teachers is primarily about improving their teaching practice. It includes both formal and informal learning activities to transform attitudes, behaviour, skills and knowledge. Formal knowledge sharing methods like training workshops have failed to deliver the desired on-demand, context-appropriate knowledge. On the other hand, informal knowledge sharing through CoPs can transform teachers by contributing to their immediate context or needs. There are various national and global IT platforms that are designed to enable teachers to participate and share knowledge in a CoP but in many countries, online platforms for the professional development of teachers are relatively new. This systematic literature review reports a qualitative synthesis of literature on in-service teachers' online CoP participation. It adheres to the five-step literature search and analysis process by Creswell (2012). Seven peer-reviewed articles were included from 603 initial records. Applying an approach inspired by grounded theory (Corbin & Strauss, 1990), themes were identified in each article and then grouped into seven categories as follows: (1) In the online communities of practice, in which activities do teachers engage with one another? (2) What knowledge do teachers share in the online CoP? (3) What motivates teachers to participate and share knowledge in the online CoPs? (4)

What are the barriers to teachers' participation and knowledge sharing in the online CoP? (5) What roles do moderators play in teachers' online platforms? (6) What are the perceived benefits of teachers' online CoPs? (7) Which factors should be considered while developing online platforms for teachers?

Keywords: school teacher, professional development, communities of practice, teacher knowledge sharing, teachers' emotional development, barriers to online participation

The Role of Perceived Relevance and Attention in Teachers' Intention to use Gamification

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Abstract: Gamification is becoming a trending topic in education as a new teaching methodology to increase attention and to engage students in their learning process. Despite the increasing academic interest in gamification little research has been devoted to analyze teacher's beliefs regarding the use of gamification in their courses and how these beliefs affect their attitude intention to use gamification. Using Keller's ARCS model as a theoretical framework the role of perceived relevance and attention in teachers' attitude and intention to use gamification is analyzed. To do so a research model is tested using a sample of 312 higher education institutions teachers via structural equation modeling to predict teachers' attitude and behavioral intention to use gamification in their courses. Results suggest that perceived attention drawn by gamified classes is a factor affecting teachers' intentions to use gamification in their courses. Perceived relevance was not found to affect directly attitude while teachers' perceived attention was found to affect teachers' perceived relevance of gamification. Limitations of the study and future research lines are also addressed.

Keywords: gamification, higher education, relevance, attention, attitude, intention to use

Using Computer-Based Simulation Games to Improve the Competencies of MPA Graduates

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Abstract: Computer simulation, an active learning technique, is now one of the advanced pedagogical technologies. The use of simulation games in the educational process allows students to gain a firsthand understanding of the processes of real life. Public administration, public policy, and political science courses increasingly adopt simulation games in universities worldwide. Besides person-to-person simulation games, there are computer-based simulations in public administration education. Currently in Russia the use of computer-based simulation games in Master of Public Administration (MPA) curricula is quite limited. This paper focuses on computer-based simulation games for students of MPA programs. Our aim was to analyze outcomes of implementing such games in MPA curricula. We have done so by (1) developing three computer-based simulation games about allocating public finances, (2) testing the games in the learning process, and (3) conducting a posttest examination to evaluate the effect of simulation games on students' knowledge of municipal finances. This study was conducted in the National Research University Higher School of Economics (HSE) and in the Russian Presidential Academy of National Economy and Public Administration (RANEPA) during the period September to December 2015, in Saint Petersburg, Russia. Two groups of students were randomly selected in each university and then randomly allocated either to the experimental or the control group. In control groups (n=12 in HSE, n=13 in RANEPA) students had traditional lectures. In experimental groups (n=12 in HSE, n=13 in RANEPA) students played three simulation games apart from traditional lectures. This exploratory research shows that the use of computer-based simulation games in MPA curricula can improve students' outcomes by 38%. In general, the experimental groups had better performance on the posttest examination (figure 2). Students in the HSE experimental group had 27.5% better scores than students in the HSE control group. Students of the RANEPA experimental group had 38.0% better scores than students in the RANEPA control group. Research indicates that lecture-based courses are less effective than courses with more interactive approaches. Therefore, our study highlights the need to implement computer-based simulation games in MPA programs in Russian universities. Computer-based simulation games provide students with practical skills for their future careers.

Keywords: active learning, simulation, computer-based simulation games, students of MPA programs, public administration, municipal finance

A Teaching Model Using Social Network Sites

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Abstract: New media and social network sites (SNSs) currently play an important role in our society and in our daily practices (Boyd and Ellison 2008; Lister et al 2009; Watkins 2009; Papacharissi 2011). This necessarily affects the way we learn together, as explored in research spanning several areas. Regarding higher education, Facebook has an increasingly prominent position and is more widely investigated as an instructional tool in the college classroom than most SNSs (Tess 2013). From the perspective of teaching and learning, the Web 2.0 is seen as an enabler of a vision in which the student will find information potentially contradicting the knowledge acquired through the traditional formal learning process (Santos 2009). This feature leads to a continuous discussion of the facts, topics and subjects having an awareness of a common range of formal established knowledge shared in a given community and, at the same time, the joint reflection and debate within this same community. This new reality, in which the roles of the teacher and the student (or the roles of who teaches and who learns) become fuzzy, difficult to distinguish clearly, also brings the need for new ways to understand, describe, and explain the learning process and the ways in which it develops. In this paper we use the concept of social e-learning (Martins et al. 2012), building on the connectivist perspective (Siemens 2004, 2006, 2008). Social e-learning can be considered as a learning process whereby the Internet represents a space for participation, sharing, and collaboration, with new opportunities to create, share content, and interact with others (Bennett 2012) – an open door to build more open and flexible knowledge, where students build and rebuild their own path. A concrete format for its implementation is proposed and a genuine experience is presented and discussed. The social e-learning model presented in this article has been successfully applied in a training course in the field of business communication, held by Citeforma. Citeforma is a Portuguese vocational training centre, jointly managed by SITESE (a services workers and technicians union) and IEFP (the Portuguese Institute for Employment and Vocational Training).

Keywords: social learning, Web 2.0, social media, social network sites, education, learning communities

Validating a Social Media Typology with Machine Learning and Focus Groups

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Abstract: Social media networks (SMN) are an established part of the learning landscape in which our students reside as digital inhabitants [Prensky, 2011]. Yet on-going reviews show that despite the rise of the "digitally astute" there remains a digital literacy gap (JISC, "digitally scared" Martin Oliver, Institute of Education;) Our work is built around an ongoing four-year survey of student attitudes and engagement with SMN and their educational use. Our pre-conceptions were that students would be less keen on engaging with staff via social media. This persistence of traditional patterns of learning behaviour is an extension of what happens in other aspects of behaviour, for example with the extension of bullying into cyber-bullying. However, the survey results showed only 14% of students against this. These can be further divided into This compared to 37% of staff who were against social media / VLE integration. "refuseniks" who did not use SMN (2.5% of the total) and "separatists" who wish to keep academic study separate from personal use of SMN (12.5%). Amongst more active SMN users, 12.5% were separatists, while 55% were "integrationists", wanting SMN linked to the VLE.UsingUUsing machine learning to investigate whether those for academic SMN use (dubbed "integrationists") could be separated from those against ("separatists") showed it was hard to predict students' attitudes purely based on their patterns of use of SMN. The complexity of the issues is reflected by focus group work that identified SMN as just one part of a complex pattern of personal communication. For some, Facebook (FB) consumed more time compared to text/email, but the latter were seen as more privileged with use restricted to higher value conversations and participants. Other insights included conflicted views on the value of SMN, a functional view of SMN alerts, and the lack of immersion in academic SMNs. These results suggest SMN are not a panacea for student engagement. Care must be taken in designing effective learning conversations using appropriate media and interaction. Slavishly adopting social practices from SMN will not automatically benefit learners and may leave them more disengaged and distracted than ever.

Keywords: social media networks, student engagement, academic engagement

Computer Assisted Versus Traditional Testing: Statistical Assessment of Students' Performance in Different Types of Tests

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Abstract: Computer technologies have opened up new possibilities for optimizing the administration of tests, test development and assessment. Computer Aided/Assisted Testing, as well as Computer Assisted Language Testing, have brought many positive aspects that can be applied in order to create a more positive attitude toward test assessment, to reduce item exposure and subsequent security risks, and provide a valid and reliable measurement of students' competence. Nowadays, teachers have a choice between supervised or unsupervised e-tests, and quite often they vote for unsupervised tests as these tests allow frequent testing of many students with fewer teaching staff, and give each student the significant freedom of choosing the time, place and manner in which to take the test. Teachers who prefer classical methods of teaching insist on paper-and-pen tests. The authors describe their experience with all of the above mentioned types of tests, and then focus on their research dealing with long-term observation of students' results and statistical assessment of their performance in English language. In this article, students' results of e-test tests and paper-and-pen tests (supervised and unsupervised) are compared in order to find any relationships among them, and to find an optimal proportion among various types of tests. Applied statistics have been applied to gain valid data when analysing different types of tests and comparing the results of these tests. Parametric and non-parametric statistical tests of the hypothesis regarding these relationships are described in the last part of this article.

Keywords: computer assisted testing, supervised and unsupervised e-tests, paper-and-pencil tests, applied statistics, statistical tests

Framework for Students' Online Collaborative Writing

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Abstract: The paper focuses on collaborative writing in Google Docs and presents a framework for how students can develop methods for collaborations that include human and non-human actors. The paper is based on the large-scale

research and development project *Students' Digital Production and Students as Learning Designers* (2013–2015), funded by the Danish Ministry of Education. The target groups were primary and lower-secondary schools. The project explored teacher-designed frameworks that involved students' agency as digital producers of learning objects aimed at peer students. The project demonstrated that digital production facilitates students' learning processes and qualifies their learning results when executed within a teacher-designed framework that allows for and empowers students' agency. The overall research design was organised as a mixed methods approach. A sub-study within the large project, which is based on an ethnographic approach, shows that the students develop their own strategies for the online collaborative process, through which they organise the work in different ways when interacting with the technological affordances and material performance of the technology. The sub-study also shows that teachers do not introduce or refer the students to online collaborative strategies, roles or communications. The students' online collaborative writing is entirely within the students' domain. On this basis, the paper focuses on how teachers' awareness and articulation of the students' online collaborative writing within a framework can qualify students´ methods to collaborate online with the intention to improve their learning results. In relation to this, the paper explores how digital technologies may act as co-participants in collaboration, production and reflection. Moreover, the framework is designed to help teachers to scaffold students' reflections of their strategies, roles and communications in online collaborative writing processes.

Keywords: online collaborative writing, teachers' framework**,** students as learning designers, learning for collaboration, agency

Comparing Student Activity and Performance in the Classroom and a Virtual Learning Environment

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Abstract: In recent years, we have witnessed an increasing use of e-learning in higher education, triggered by both new educational technologies and new pedagogical approaches. This development raises questions about how students learn in virtual learning environments (VLEs) compared to traditional classroom environments. While several case studies have examined this question, they are often based on single course iterations and there is a lack of longitudinal and quasi-experimental comparative studies. In this paper, we examine how student activity and performance are related in a graduate course in applied physics that

was reformed by replacing the traditional classroom environment with a VLE. We use longitudinal data from six iterations of the course, of which half were campus based and half were conducted online. We analyse quantitative data based on home assignments, the students' participation in course activities as well as the quantity and quality of questions that students posed during the course. The results show that there is no statistically significant difference in the students' average performance across the two formats. However, for the VLE there is a substantially greater variation in individual performance. Moreover, the participation in synchronous activities in the VLE, such as online wrap-up sessions and tutorials, is strongly correlated with improved student performance. Further, students that asked content-related questions are more likely to achieve better outcomes. We conclude that despite the reported benefits of video lectures, even when augmented with built-in quizzes, these are not sufficient for encouraging a deep approach to learning. Our results provide further evidence that video lectures need to be accompanied by other learning activities that require students to engage in higher-order thinking skills. We discuss our results in the light of related empirical and theoretical work, and highlight implications for teaching in blended and virtual learning environments.

Keywords: virtual learning environments, learning analytics, student performance, student activity, higher education

The Role of Text Messaging in Team Collaborative Learning

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Abstract: Teamwork is essential to the successful completion of group tasks, and is therefore usually highlighted by universities as a desirable graduate attribute. To encourage the development of good teamwork skills among students, many university courses incorporate team assignments. In a conventional learning environment, students meet face-to-face in the classroom or somewhere on campus to complete their team assignments. However, it is interesting to note that today's students prefer instead to have discussions or to collaborate using digital media. Today's students use such digital communication media as email, text messaging, video chat, etc. to collaborate with team members in the process of completing their team assignments. As the students are familiar with and use some of these digital communication media in their everyday activities, it is quite possible that they also find them convenient and easy to use for academic work purposes. According to Nowak, Watt, and Walther's (2005, 2009) efficiency

framework, people tend to select communication media that they consider more effective in achieving certain objectives and those that require less cognitive and behavioural effort, and less time. However, is it true that digital communication media indeed help users to achieve greater team effectiveness, or is it just a perception myth? This study attempted to examine, when university students used text messaging for team collaboration purposes, if text messaging affected their copresence (modelled as a second-order formative construct which consists of two subconstructs: self copresence and partner copresence), media satisfaction, and perceived team effectiveness. This study conducted a questionnaire survey to collect responses from students who had been involved in team projects, and performed a partial least squares analysis of the responses. The findings show that copresence had a significant relationship with media satisfaction; media satisfaction had a significant relationship with perceived team effectiveness; and media satisfaction had a partial mediating effect between copresence and team effectiveness. This study could help explain why students may choose text messaging to facilitate team collaborative learning.

Keywords: collaborative learning, copresence, digital communication media, efficiency framework, media satisfaction, team effectiveness

Using an Electronic Portfolio to Support the Learning Process of Lower-Secondary School Pupils When Choosing a Career

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Abstract: The paper reports on the concept, implementation and findings of qualitative research focused on an electronic portfolio (e-portfolio). The research aimed to explore the use of an e-portfolio in the learning process of lower-secondary school pupils (ISCED 2) in the Czech Republic concerning their career choice. The primary research question was defined as whether we can consider an e-portfolio as an appropriate learning tool to support pupils' preparation for their career choice. The research sought to a) analyse the current process of pupils' preparation for their career choice, b) evaluate the appropriateness of an e-portfolio as a supportive learning tool for career choice based on the experience from last years, c) evaluate the appropriateness of an e-portfolio for the pupils' self-reflection and self-evaluation development, d) suggest optimum learning scenarios, which could be implemented into learning through educational activities. In the first stage of the action research, the pupils described their preferred occupation and specified formal and informal job requirements using

cloud technologies. In the second stage, a teacher assessed pupils' work with the assistance of an external interviewer. In the third stage, pupils prepared a CV and cover letter for an imaginary employer using a professional portfolio. An imaginary recruitment process followed. It was organised by an external interviewer using pupils' job applications.

Keywords: e-portfolio, cloud, lower-secondary school, career choice, evaluation, self-reflection

The Inclusion Potential of Student Production of Digital Learning Objects

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Abstract: This account of the inclusion potential of students' digital production is based on the large-scale research and development project *Students' Digital Production and Students as Learning Designers* (2013–2015), funded by the Danish Ministry of Education. The target groups were primary and lower-secondary schools. The project explored teacher-designed frameworks that engage students' agency as digital producers of learning objects for their peers. The findings indicate that digital production facilitates students' learning processes and qualifies their learning outcome when executed within a teacher-designed framework that accommodates and empowers students' agency. The Danish parliament passed the Law of Inclusion In 2012 with the objective that by 2015, 96% of all students would be included in normal classes. Inclusion was not part of the initial research agenda, but this changed unexpectedly during the project. Specifically, students who did not participate or participated only sporadically in everyday school activities at the beginning of the project adopted new positions as participants and agents. We understand these changes as inclusive processes initiated by the combination of teacher-designed frameworks, student agency and digital production. This paper describes two representative cases, analysed from a post-phenomenological perspective to explore the inclusive potential and role of digital artefacts and digital learning production. We found that 25 out of 50 student we at first identified as non-participants changed position during the project. We argue that both the learning design and the use of specific technological resources played a major role as actors in the observed emerging process of inclusion for both students and teachers.

Keywords: inclusion, exclusion, digital production, students as learning designers, actors, agency

Designing an Object-Based Lesson Model Based on a Proposed Cloud e-Learning Framework

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Abstract: E-learning is persistently evolved in the adaptation of emerging technologies and pedagogies. The advancement and emergence of new technologies also empower continuous development of learning objects. Object-based learning approach has been widely adopted in e-learning. However, conventional object-based e-learning approach is insufficient to deliver the needs of upgraded learning processes especially in the higher education. The challenge of dealing with dynamic concurrency demands and rapid storage growth requirement especially in multimedia elements limits the flexibility and shareability of the e-learning content. The flexibility and on-demand access to a centralized shared pool of computing resources provided by Cloud computing enables high reusability and shareability, hence overcomes the issue in e-learning due to the rigidity of conventional object-based e-learning content. This paper describes a study on the design of an object-based lesson model based on a proposed Cloud e-learning framework. The proposed Cloud-based e-learning framework adopts the strengths of the current state of the art of Cloud learning frameworks. Principal to the design of the object-based lesson model is the development of Cloud-based e-learning objects where learners have the flexibility to access, personalize and deploy them in e-learning environment. With the availability of smart mobile technology and Web 2.0 tools, a new form of object-based e-learning utilizing Cloud technology is envisioned. Essential components such as Cloud-based e-learning object instructional properties and design principles are discussed. Cloud based e-learning objects being highly reusable and dynamically flexible, can be deemed as a new approach for knowledge aggregation.

Keywords: object-based e-learning, Cloud-based e-learning objects, e-learning, Cloud computing, flexibility, reusability

Biometric Belt and Braces for Authentication in Distance Education

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Abstract: Assessment of students in higher education has a tradition of using mechanisms to prevent cheating and plagiarism, and the same need exists today for online assessment in virtual learning platforms. The number of students that are suspended from courses in tertiary education has increased in the last decade and there is a need for new techniques to handle the problem in online environments. To achieve zero cheating is hard (or impossible) without repelling not only cheaters but also those students who do not cheat, and a zero-tolerance emphasis would also risk inhibiting students' intrinsic motivation. Several studies indicate that existing virtual learning environments do not provide the features needed to ensure that the intended student is the one taking the online exam. New technology opens up opportunities for online authentication through biometrics, but raises new ethical issues in the fields of integrity and data protection. The aim of this study is to explore and discuss how a reliable model for online authentication in distance education could be constructed with the use of biometrics without the risk of unnecessary integrity violation. Data has been collected in a literature study and discussed in the light of existing technology applied to the field. Findings show that promising digital techniques exist which could be combined to assure authentication in online exams without violating students' privacy or storing sensitive data. A suggestion is to develop a biometric belt and braces model with a combination of scanned facial coordinates and voice recognition, where only a minimum of biometric data is stored. Conclusions are that online examination becomes feasible when the associated cheat risks are not zero but as low as in traditional examination, and that students' integrity have to be considered in all learning modalities.

Keywords: online authentication, biometrics, distance education, online assessment, elearning integrity

Geocaching as a Means for Modernization of Educational Process

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Abstract: Geocaching is a real-world, outdoor treasure hunting game using GPS (Global Positioning System). Participants navigate to a specific set of GPS coordinates and then attempt to find the geocache (treasure) hidden at a certain location. A hint can be used as a tool for seeking. Simple rules, variability and the chance to experience the unknown make the game more attractive for the millions of players of various age categories all over the world. It is popular especially among younger generations, therefore we were inspired to implement Geocaching in the secondary education processes to make the learning modern and attractive. The implementation is based on the transfer of Geocaching principles to the learning conditions of nowadays schools, when the geocache creation and the game realization become parts of educational process. Teacher can adjust the form and the content of geocaches according to own demands, the curriculum and school conditions. Geocaching has been divided according to our needs into three basic elements - coordinates, hint and treasure. We have processed a set of concrete proposals how to use these elements in the educational process. For better understanding we have identified 10 structural components such as number, locality, text, video, etc. which teacher can use, freely combine and apply according to own needs. Teacher can also decide which teaching strategy is the most suitable for subject or topic. One of the options is Problem-based learning in which students learn about a subject through the experience of solving an open-ended problem. This strategy was implemented in practice. We have tested our proposals on students of grammar school in freshman year. Their task was to solve set of mathematical problems using preferred procedures utilizing knowledge of the GPS and mathematics. Using the principles of the game brings to the learning process a lot of benefits such as active learning, motivation, promotion of interdisciplinary relations and much more.

Keywords: GPS, Geocaching, project-based learning, secondary education, interdisciplinary relations

Effectiveness and Efficiency of Blended Learning Model for Developing Leadership Skills

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Abstract: Institutions of higher education are increasingly adopting blended learning, because it has been widely demonstrated that blended learning could be a better learning model than pure face-to-face classroom teaching or online learning. However, literature reviews show that many institutions mostly implement blended learning rather than evaluate the potential benefits. As blended learning continues to grow in popularity, so researchers must explore the potential and limitations of this field in depth. The aim of this paper is to present research results of effectiveness and efficiency of a hybrid learning and teaching model for developing leadership skills among graduate students. The authors focused on two important things. First, the authors investigated how to enhance benefits of blended learning for leadership training for working students and, second, the authors explored the drivers of blended learning for working students in order to achieve high quality teaching and learning experiences. Blended learning has been shown useful and beneficial when used to attract experienced teachers from abroad to university courses when they cannot come for the whole semester. Therefore, the paper analyzes theoretical aspects of employing a blended model to teach degree level as well as executive level studies in a university context, and the applicability of this model in the context of leadership courses. In order to empirically test how efficient and effective the hybrid model is for teaching and learning leadership, a qualitative case study research strategy was chosen. This strategy allowed interpretive, contextual, and authentic evaluations instead of objective, non-contextual, and inauthentic evaluations. The research results are based on the case study of recently developed leadership studies course at one Lithuanian university. During the research, it was found that blended learning provides powerful and efficient methods for course participants, however, several things need refinement. In particular, some aspects of learning design, learning material and modifications at organizational level.

Keywords: blended learning, e-learning, efficiency, effectiveness, leadership studies, collaboration

PhD Research Papers

How Czech Universities Cover Web Development Teaching in Their Curricula

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Abstract: Nowadays, nearly everyone is using the Web. However, the developing of proper and well-designed web pages is something between art and skill in relevant technology exploitation. Adequate skills are not likely to be gained individually, but it is reasonable to have them covered in university curricula at some level. This paper is devoted to the current situation in Czech universities with a focus on those curricula, where coverage of subjects oriented towards web technologies can be expected. An analysis of a number of syllabi of subjects focused on web technologies in the study programmes of nearly all Czech universities was provided and its results are presented. The results of our analysis are as follows: (1) the subjects focused on web development are being taught at the majority of Czech universities, apart from those that are artistically oriented; (2) the level of content of the respective syllabi varies significantly, and it is not much tailored to practical convenience. In conclusion, we are convinced that the implementation of the basic principles of the systems theory could contribute greatly to an improvement in the interestingness of web development-oriented subjects for academicians as well as their usability for students. It has already been proven that web presentation is a system, so we believe that it is obvious that this fact should also be reflected in web development teaching at universities in the Czech Republic, and certainly also elsewhere.

Keywords: web development, teaching, curricula, Czech universities, system theory, analysis

Evaluation of an Automatic Question Generation Approach Using Ontologies

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Abstracts: Advancements in Semantic Web techniques have led to the emergence of ontology based question generation. Ontologies are used to represent domain knowledge in the form of concepts, instances and their relationships as their elements. Many research strategies for generating questions using ontologies have been proposed but little work has been done on investigating whether an

ontology is an appropriate source of data for question generation. Since there is no standard guideline for developing an ontology, the representation of ontology elements might vary in many ways, and this paper aims to investigate how the naming of ontology elements would affect the questions generated. In order to achieve this aim, two research questions will be investigated which are: how many correct questions can be generated from an ontology, and what are the reasons for incorrect questions being generated. Categorized question templates and a set of question strategies for mapping templates with a concept in an ontology are proposed. A prototype has been developed with a *Reader* to read data from input file and 3 question generators namely *termQG, ClassQG and PropertyQG* to generate questions for 3 ontological approaches. After questions have been generated, the number of correct questions generated is calculated and the reasons for incorrect questions are identified. Two ontologies have been used, an Operating System Ontology and a Travel Ontology. Twenty question templates from three question categories – *definition, concept completion* and *comparison* – together with 5 question generation strategies have been used in this evaluation. Results shows that more than half of the questions generated are correct and there are 3 distinct reasons why incorrect questions may be generated. The main contribution to incorrect question generation was inappropriate naming of ontology elements where 4 distinct categories are further identified. In addition, evaluation shows that the object type should be considered when designing question templates. Furthermore, the evaluation indirectly shows the effectiveness of the ontological approaches for generating questions from a real-world ontology.

Keywords: question generation, ontology, ontological approaches, assessment, question template

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Enhancing Language Learner Autonomy through ePortfolio Use

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Abstract: Nowadays, in compliance with the so-called 21st century skills, it is desired to provide our students with skills needed to become successful, autonomous, and reflective practitioners. Implementation of ePortfolio in the learning process seems to be a feasible solution to the above mentioned challenge. The aim of the author's research is to examine the potential of ePortfolio use in language learning at tertiary level. The paper describes a pilot study of a course

design enhanced by ePortfolio application and piloted in university students of English for Specific Purposes and the University of Pardubice, Czech Republic. 40 students of English for Economics and English for Chemistry are involved in the initial phase of the study with the aim to provide language learners with space for self-analysis and self-reflection followed by blended form of guided autonomous learning and subject learning. The study participants undergo several stages of language level assessment. Firstly, it is an initial ePlacement test; consequently, students go through self-assessment of their skills followed by standardized language testing. The results of tests are shared and discussed with the students with the focus on strong and weak skills. Each phase is concluded by setting learning objectives based on obtained test results and self-assessment forms. The process aims at formulation of partial, concrete, and achievable learning objectives. The main functions of portfolio are all present in the study phases: evaluation, growth, and showcasing functions. The ePortfolio represents both the role a personal learning space and simultaneously of a space designed for collecting artefacts which provide evidence of met objectives. The suggested teaching and learning model using ePortfolio to enhance reflection and autonomy in learners can be adjusted and applied in teaching and learning subjects of various fields thus increasing the learning experience and outcomes in the learning process.

Keywords: ePortfolio, digital portfolio, self-reflection, self-assessment, autonomy, language learning, higher education, ELT, pilot study

Adult Learners' Motivation to Participate and Perception of Online and Blended Environments

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Abstract: Adult learners are an important segment of learners in online or blended learning (OBL) environments. But at the same time, this group is very heterogeneous with regard to (1) the digital skills which are diverse due to different ages or previous educational opportunities and can lead to different perceptions of working in OBL environments, and (2) the motives to enroll and persist in adult education which can be influenced by previous work and life

experiences. Therefore, the present study aims to identify the learner diversity by applying the self-determination theory (SDT) of Deci and Ryan (2000) in order to explore their motives to participate in adult education. Next, this study also examined the perceptions of learners to learn in OBL environments. Qualitative content analysis was conducted on nine semi-structured interviews. The participants were adult learners enrolled in an OBL program in an adult education center in Flanders, Belgium. The adult learners indicate that the face-to-face moments are highly valued because they can learn more and better this way. However, sometimes they prefer distance moments since the content can sometimes be learned independently. Furthermore, the participants agreed on the practical benefits of OBL and the difficulty of working in groups, and provided tips to be successful in OBL environments. Regarding the motives to enroll and persist in adult education, the adult learners generally participate to be able to continue their current job, to have an alternative job possibility, or because they want a new job. The current study informs institutions and teachers about the motives of adults to participate in adult education and their experienced benefits or challenges in OBL. This is relevant since it gives an indication of components to be attentive to or to work on in online and blended adult education, specifically when trying to meet the needs of the adult learners.

Keywords: Adult education, motivation, online and blended learning, self-determination theory, perceptions

Acceptance and Use of E-learning Technologies by Saudi Secondary Teachers

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Abstract: As in many developing countries, the Saudi government is seeking to introduce modern technology into its educational system. The Ministry of Education has provided computer labs and the National Education Portal, a digital resource available to all schools. However, as in other countries, digital technologies are not fully accepted and used in Saudi secondary schools (Lim and Khine, 2006). The Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al, 2003) has been widely used in the field of Information Systems to explain technology acceptance and use. A review of the literature suggests that a number of changes to the model would better fit developing countries. A proposed revised model was designed for the Saudi secondary context to support fuller analysis of the acceptance and use of new educational technologies by teachers, and of the influence of their perceptions and practical

and affective experiences. In taking account of Saudi educational and cultural factors, the research explores this knowledge gap in the study of technology acceptance and also explores and addresses differences between teachers' stated intention to use these technologies and their actual use in practice. The paper reports on research design for an online survey and interviews to be conducted among teachers in the Jazan area of Saudi Arabia in a study, which will use mixed methods (Creswell, 2014) to investigate digital learning technology acceptance in secondary schools in a regional Saudi context. The investigative questionnaire was designed to produce both quantitative and qualitative data as a basis for subsequent phase of the study, highlighting areas that will be further explored by interviewing teachers. The study outcomes will both illuminate regional policy issues in digital technologies and, importantly advance the debate on conceptual understanding of technology acceptance in education by refining the UTAUT model.

Keywords: UTAUT model, digital learning technology, e-learning, Saudi Arabia, technology acceptance, secondary teachers.

Non Academic Paper

ALiS™: An Immersive, Social Learning Environment (ISLE)

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Abstract: Discussions around the potential for video game and virtual world technologies to enhance learning and teaching stretch back many years, and various attempts have been made to tap into this potential (Gee, 2003). While there is huge potential for education and training to occur in multi-user virtual environments in which users describe their experiences as having 'great presence' there is a need for caution owing to the steep learning curve for students and teachers in comparison to other easier to use environments (Berge, 2008). This is being investigated as part of a Pre-Induction Gateway project at Birmingham Business School, where we have developed a globally-accessible, immersive, social and active learning platform called ALiS™ that can be deployed for a variety of educational purposes in any number of educational contexts. The broad aim of this report is to provide an update on the development of this innovative new technology and its forthcoming implementation at the University of Birmingham and beyond.

Keywords: social learning, active learning, technology enhanced learning, immersive, online teaching, virtual worlds

Work In Progress Papers

Casting the 'net' in Autonetnography: Professional Development in Networked Learning Teaching Praxis

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Abstract: A move towards networked learning within higher education may challenge the professional development needs of experienced face-to-face teachers learning to teach online. Analytic autonetnography as an emerging eResearch methodology is introduced as an experiential exploration of my networked learning teaching praxis (NLTP). Reflexive blog-noting, narrative visibility and dialogue with a peer-debriefer will precede theoretical analysis of peer reviewed literature to consolidate an informed interpretation of my NLTP.

Keywords: Autonetnography; networked learning teaching praxis; online teacher professional development; reflexivity

Student Perceptions of ePortfolio as Competence Assessment during the Practical Training Period for Early Childhood and Primary School Teaching

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Abstract: Many teacher education institutions aim to develop and assess teacher competences during teaching practice. This study explores students' perceptions regarding the integration of electronic portfolios (ePortfolios) during teaching practice. It is a result of the pilot study of an innovation research project. The aim of this project is to determine the key aspects in the use of technologies for learning and knowledge in the development, monitoring and mentoring during the practical training period between mentor teachers of school, tutor professor and students' double university degree in early childhood education and primary education. Data was collected through Focus Group to capture deeper information that will help to know most significant ePortfolio learning experience and how to make the educational teaching practicum more meaningful. This paper discusses the findings of a pilot study that set out to explore student perceptions of ePortfolio experience on four categories: (1) planning, organizing and time managing; (2) interaction, reflection and feedback; (3) Content and collecting evidences and (4) useful and usability of ePortfolio.

Keywords: ePortfolio, student perspective, teacher education, higher education.

Comparison of Higher Education Student and Teacher Perceptions of E-learning

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Abstract: Currently e-learning is considered an essential part of the everyday learning processes for both teachers and students in higher education. However, the learning results of e-learning are under debate and there is a growing critique on the efficiency and actual results of e-learning. In this paper we present our on-going work for exploring higher education students' and teachers' recent perceptions of their e-learning experiences. Two surveys were conducted in order to investigate and compare the perceived advantages, challenges and needs for support among the students and teachers in higher education. The results indicate that the perceived advantages of e-learning for both teachers and students were fairly similar. Flexibility in use of time and place were found as the most important benefit of e-learning. The main challenges in e-learning for both students and teachers dealt with technical issues and teacher-student interaction. Both students and teachers also experienced problems in directing the learning situation. Based on the studies we suggest that in order to ensure high-quality learning results in e-learning, continuous and relevant training and peer support for educators and students are needed. Additionally it is important to enhance the user experience and to carefully design the content and materials of the courses. Finally, we suggest that in e-learning the interaction between teachers and peer students should be improved.

Keywords: e-learning, technology enhanced learning, higher education

From Concept to Practice: Helping Teachers to Create Effective Flipped Classrooms

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Abstract: This work-in-progress project is focused on helping university teachers to design and implement effective flipped classes. It is evident that the flipped classroom has become a core model of e-learning in contemporary teaching and learning. This pedagogy incorporates a group of learning strategies including blended and active learning. It is well documented if students are able to preview

key concepts, face-to-face classes can be more effectively used for active learning. A 2012 University of Adelaide-funded flipped classroom project validated many of the professed advantages of this pedagogy. Teachers participating in the project indicated a clear willingness to use flipped learning. However, widely-shared obstacle identified by the teachers from this study, was a lack of confidence to apply concepts of flipped learning into practice. This may be the 'weak link' that's compromises flipped learning implementation. Therefore, as universities promote flipped learning as a contemporary teaching approach – there is an underlying challenge - that teachers are being asked to implement a pedagogy that many may not fully understand. Our work-in-progress project runs from February 2015 to December 2016. By implementing teacher development workshops, construction of an interactive website and developing flipped classroom resources, we aim to build staff capacity to use this e-learning approach to enhance their students learning experience. Twenty professional development workshops for some 350 university teachers across Australasia are scheduled during the project. Data from workshops run so far indicates 98% of participants felt more confident to design flipped classes, whilst 100% would recommend the workshop to their colleagues. Developing the 'Seven Key Steps to Flipping' has been a major outcome of the workshops and these steps are subject to peer review in subsequent workshops. This rigorous approach ensures a scholarly strategy to creating effective flipped classroom through its 'road testing' in a wide range of disciplines and institutions.

Keywords: flipped classroom, developing teacher capacity, blended learning, learning design

Utilization and Benefits of YouTube for the Educational Purposes: a Review Study

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Abstract: Social software applications can be used as an important element in the process of education. YouTube, as a Web 2.0 tool, can be utilized by modern society through observation and social cooperation and interactions. YouTube and shared videos are opening new ways used for educational process. Students are motivated to getting new knowledge with the up-to-date channel for communication and sharing of the materials. The goal of this study is to explore the benefits of YouTube with respect to their use for the educational purposes. YouTube is classified as a content based social network. The profile doesn´t play

such an essential role as profile on Facebook. One of the key benefits is that content based social networks are usually accessible to all without necessity to create an account. Other benefits are sharing materials, higher students' involvement, and demonstrations in form of video, music or pictures. The methods used for the analysis included a method of literature review of available sources in the acknowledged databases such as Web of Science, Scopus, Springer, ScienceDirect or Google Scholar exploring the issue of YouTube with respect to educational purposes was used. Furthermore, other sources cited in the analysed studies were also examined. Secondly, on the basis of evaluation of these literature sources, the researched issue was explored. The review study is beneficial not only for academicians and students, but also for the business community. They can profit thanks to the shared materials.

Keywords: analysis, benefits, database, review, YouTube.

Developing the Concept of Russian Open Education Platform

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Abstract: In 2015 the National Open Education Platform has been started in Russia in response to global challenge from rapidly developing foreign MOOC platforms. The project created by eight leading national universities with support of the Ministry of Education and Science of Russia aims to improve quality, usefulness, and availability of Russian education. The article describes experience of implementing e-learning in Ural Federal University exploring the basic issues which arose while using open on-line courses in the university educational process. Economic and other effects of open education development for the university have been assessed. The authors have described different models of entering the open education market either as developers of open on-line courses or consumers of a new educational product. Risks, existing barriers, and possible options of further growth have been analysed. The article contains description of specific practices which can be used to increase open education efficiency or the rate of development of this area in a university.

Keywords: e-Learning, massive open on-line courses, National Platform, university, open education

Abstracts Only

Addressing Quality Through Assessment: Online English Language Learning

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Abstract: Demand for global higher education is resulting in enrollment increases of 5% per year (British Council, 2012). Meeting this demand may require institutional retooling in terms of delivery and pedagogy. Online learning is a particularly viable solution, enabling institutions to provide access to diverse populations (Altbach, Reisberg, & Rumbley, 2010; Higher Education Authority, 2015; International Council for Open and Distance Education & European Association of Distance Teaching Universities, 2009). Such forms of flexible learning entail greater choice for learners in terms of time, place, and delivery of educational offerings. Innovation is required to provide these choices in ways that support effective learning and successful program completion, however. This is described as follows. Flexible learning is important because it is a key means of allowing students to combine different areas of their lives– work, study and leisure – in ways that suit them best. When well supported, this positively impacts recruitment, retention and progression; widens participation; and offers opportunities to learners of all ages, backgrounds, ethnicities and nationalities (HEA, 2015, p. 4). Online learning, one form of flexible delivery, is not without its challenges, however. Nearly 45% of chief academic officers feel that it is more difficult to retain students in online courses than in face-to-face courses, and the majority (68.3%) believe that more discipline is needed for success in online than traditional courses (Allen & Seaman, 2015). Although flexible learning has the potential to encourage "students to become independent and autonomous, fostering graduate attributes that will enable them to manage the complexities of 21st century life" (HEA, 2015, p. 3), this does not occur automatically, but requires intentional course design and instructor facilitation (Andrade, 2014a, 2014b). A key consideration for online programs is quality. Academic leaders report that only 28% of their faculty value online teaching (Allen & Seaman, 2015). Instructors may believe that traditional in-person interaction is critical to learner success and that online courses are of poorer quality. However, interaction can be built into online courses as can strategies to assist learners in developing the needed discipline and responsibility for achieving success. Factors that can improve the effectiveness of online coursework include course design, instructor skill, and learner commitment. This presentation focuses on assessment practices in an online English language course designed to help global learners develop academic writing skills. Instructor and learner engagement in assessment processes, the

provision of multiple forms of feedback, and active peer review are critical to effective practice. A key component for success is learner goal-setting and reflection to encourage self-regulation, or responsibility for controlling the factors and conditions that affect learning (Dembo, Junge, & Lynch, 2006). As learners interact, receive feedback from various sources, and engage in providing feedback to their classmates, they become more aware of their own strengths and weaknesses. The presenter will highlight course design features and instructor, student, and peer roles for effective assessment practices in online learning contexts.

Keywords: online learning, assessment, English language learning, higher education

Evaluating the Usability of Learning Management Systems from Students' Perception: A Case Study of King Abdulaziz University

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Abstract: Due to the rapid improvement in Information and Communication Technology (ICT), adopting technologies has become a major focus of interest in the field of education. The integration between ICT and education has introduced various positives and advantages. For example, ICT enhances the education quality, increases learning flexibility, eliminates the limitation of time and place and provides teachers and student with more control. The evolution of ICT in education has produced new terms such as e-learning, blended learning, web-based classes and learning management systems (LMS). LMS might not be the most creative technology; however, LMS have been widely adopted in higher educational institutions to be in the service of different learning styles. As a response from King Abdulaziz University (KAU) to be in line with the advancement in ICT and education, KAU adopted an LMS in 2014. However, such a system experiences many usability issues related to users. Moreover, the usability evaluation of LMS has been disregarded, which contributes to the small amount of published literature on the proper evaluation from students' perception. This research identifies the appropriate usability attributes, addresses the usability issues and makes recommendation for the enhancement of the usability of the LMS from students' perception. Different studies have used different methods for evaluating the usability of LMS. The utilization of empirical methods and

summative evaluation is preferable for this study. Mixed methods approach, including quantitative and qualitative methods, will be used to increase the reliability of the findings through "Triangulation". Therefore, 3 Usability Evaluation Methods (UEM) were selected: a quantitative assessment by users' questionnaire and a qualitative assessment by interviews and eye tracking.The findings of the study are in attempt to answer the research questions. What are the most critical usability issues experienced by students? How the usability level of the LMS can be enhanced? Are there any statistical correlations between the usability attributes and different variables such as age, prior experience with LMS, ICT skills, academic qualifications and GPA? The answers of the research questions provide the decision makers governing higher educational institutions with legitimate knowledge and deeper understanding of the LMS usability level.

Keywords: E-leaning systems, learning management systems, LMS, usability, King Abdulaziz University, KAU

Promoting Independent Learning: Online Learning Platform for University Chinese Grammar in Use

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Abstract: The aim of the Online Learning Platform is to promote independent learning and to encourage the incorporation of self-directed learning into the school curriculum. The Independent Learning Centre in collaboration with Department of Chinese Language and Literature in the Chinese University in Hong Kong has created an online learning platform for the learning of Chinese grammar. It is the first of its kind for a mandatory language course in Hong Kong. Students of University Chinese I are encouraged to register for the platform to support the face-to-face classroom sessions. A total of 2,556 students have registered for the Platform since its official launch in 2014. The platform contains tailor-made content, reflective questions, interactive exercises, note taking functions and recommended resources for learners. There are eight chapters: 1) Foundations of Chinese grammar, 2) Distinctive features of Chinese, 3) The formation of words and lexical classification, 4) Sentence analysis, 5) Language phenomena in HK and the pragmatic use of grammar, 6) Applications of grammatical and lexical knowledge in writing, 7) The Grammatical Hierarchy, 8) Learning rhetoric through blog posts, buzz words and literature. The distinct benefits of such an online platform are that students are allowed to set their own learning goals, study at their own pace, and test their own learning outcomes.

Keywords: Independent Learning, Learner Autonomy, eLearning, Chinese, Chinese Grammar

Seven Principles of E-Assessment: A structure for developing e-assessments for online education

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Abstract: This study reviews the a priori research on traditional tertiary-level assessment and re-interprets the literature to align with e-learning and blended learning teaching strategies and practices. The study is timely as educators need new approaches to assess outcome-based e-learning and business competency teaching. The need to redesign formative, diagnostic and summative assessment is driven by several simultaneous educational transitions, for example the rapid expansion in blended andragogy; advances in technology and digital teaching aids; and the increased availability and uptake of online distance learning and MOOCs. The paper considers and relies on the experiences of facilitators as recorded in confirmatory introspection reports, formal interviews with tutors and student participants, and theme-based analysis of e-journals and reflective portfolios for student feedback on e-assessments. This reformulation, combined with insights from e-learning scholars, practitioners and students, results in a new framework of seven principles of best practice in assessment strategies and practices that support effective competency development in blended learning undergraduate classes. A key principle highlighted by this study is that modern pedagogy, aided by technology, allows students to co-create knowledge and make sense of complex concepts in partnership with facilitators (teachers and peers). It follows that effective assessments should involve all three partners of the student-peer-facilitator tripartite and apply the same generative technologies used during the learning process. This study presents each of the seven principles alongside examples of assessment strategies successfully used in blended business education classes at tertiary level. The resulting model provides a practical aid for educators of formal or private distance learning institutions and developers of online curricula and course materials.

Keywords: e-assessment, blended learning, co-creation of knowledge, e-assessments, e-learning,experiential learning,flipped classes,online assessments

Millenials' Use of Social Media

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Abstract: Generation Y is also referred to as Millennials and the Internet Generation. The current undergraduate college population is comprised mostly of this generational group. These students bring a new view of the world to the classroom. As 21st century learners bring more skills and expectations of technology integration into their learning environments, instructors are integrating social media to meet these needs. However, it is not clear how current learners view different social media as newer sites replace existing ones. Also, it is unclear how users of social media actually utilize these sites. There has been an increased interest in incorporating social media into instructional settings. The integration of social media into instruction is intended to motivate learners as well as provide meaningful teaching and learning strategies. There have been many general characteristics identified of Generation Y learners. Many of the labels that have been used to describe this generation are unflattering. They are considered to feel entitled, are cynical, and expect more immediate gratification. Generation Y learners like to collaborate for learning but might prefer to do so in physical isolation through the internet. They tend to have many online friends but might be very isolated from the physical world. The result of fostering relationships online instead of making friends in physical proximity, might impede the depth of their connections with others. It can be assumed that this group of learners will have different expectations and different instructional needs from previous generations. Methodology During the Spring 2015 semester, 196 undergraduate students at a midsize university in the southeast completed a questionnaire on technology and social media use. The students who participated in the study were education majors in face-to-face classes on campus. The researchers administered the surveys. The purpose of this quantitative study was to determine the following: • The extent to which Generation Y engage in various online activities • Purposes of having different social media accounts • Commitment to specific social media services as designated by length of time of the account This presentation will provide an overview of Generation Y and describe general characteristics that might influence their behaviors as college students. In addition, the results of a research study on Generation Y's use of social media will be presented.

Keywords: Generation Y, Millenials, Internet Generation, Social Media

Relationship between E-Portfolio Learning Skills and Learning Style Based on Learning Log

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Abstract: Some learners learn through on-campus lectures and off-campus activities. The e-Portfolio enables to encourage consecutive learning from such fragmented learnings. However, it is konw that e-Portfolio learning requires advanced learning skills in higher education, which called as e-Portfolio learning skill. In a case to implement e-Portfolio learning, a lecturer needs to support each of learners against each lack of skills from act to act. It is also known that learning difficulties arise when the diverse learners attempt to learn with e-Portfolio. My research approaches such as difficulties from classification of students. Students seem to be classified into some groups according to the learning style, Felder's Learning Style Index. And Felder's work indicate supportive method for each of learning style learneres. A supportive prompt for the group is determined according to the classification. The questionnaire makes sure the learning style in Felder's work. The learning style of learners seems to transmute as learning. If make sure the learning style frequently, the questionnaire should be implimented over and over again. To avoid the prospect, our approach is to judge the learning style from system logs in learning systems, such as LMS and e-Portfolio. Our research has another viewpoint such as diverse learning style. If a learning style relates to ePortfolio learning skills, a learning style affects students progress with portfolio learning. Analyzing a learning style helps to provide suitable feedbacks for learners. Adding to the learning style survey, we created a questionnaire based on ePortfolio literacy rubric in order to measure learners' skill with portfolios learning. We conduct survey using this questionnaire at three times in a practical classroom. We also conduct a survey about learning style in concern with portfolio learning skill questionnaire because of a learning style affecting a portfolio learning skill. Based on results of these survey, we analyze relations between a variation of learning skill and a learning style. It will consider that the analyzed results are useful for considering a supportive tool which give the suitable feedback against learners with ePortfolio.

Keywords: eportfolio, learning style, learning log

A New Blended EFL Reading Model built on the e-Learning Technologies

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Abstract: The aim of the present poster is to illustrate the optimal blending style of in-class face-to-face reading instruction with out-of-class autonomous learning by developing a new e-learning package that integrates three distinctive e-learning technologies: (1) corpus annotation, (2) web-based materials selection, and (3) learning management. The technologies have already been implemented in actual e-learning systems: iBELLEs, DREC-J and WebOCMnext respectively. iBELLEs (interactive Blended English Language Learning Enhancement system) enables EFL teachers to create self-defined pedagogically significant tags. Following the teacher-defined tag framework, the learners give individual markup in an unconscious manner to a particular reading material shared by all the participants. The students' markup information simultaneously shows the process of how they actually read the target text, e.g. words or sentences upon which they stumbled or which they assumed were keywords or topic sentences of the text. DREC-J (Degree of Reading Ease Calculator for Japanese EFL learners), a new system specifically designed for Japanese EFL learners, is a web-based tool to evaluate the input text in accordance with an individual learner's fluency level. Before using it, the DREC-J user is prompted to assess his/her own fluency level by visiting outer web pages dedicated to the CEFR level or vocabulary size checking. After the self-assessment, users access the web pages from which they can choose reading materials that suit their fluency level in autonomous out-of-class reading practice. A robust LMS (learning management system), WebOCMnext, plays an indispensable role as an integrator of the entire package. Its advanced log management facility serves as an e-portfolio that reflects students' learning history, and its bulletin board enables the learners to interact with their colleagues, regardless of being in or out of the classroom. The teacher can monitor and intervene in their collaborative learning by providing useful suggestions or help. The authors try to show the present state of the study described so far, as well as its further possibilities.

Keywords: e-learning, blended learning, flipped class, EFL reading class

Active learning Immersion System: Project based learning in virtual worlds

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Abstract: ALiS (Active Learning Immersion System) is a 3D, social, virtual learning platform developed by Mirrador Ltd in collaboration with University of Birmingham to enhance student experience and engagement. It creates a web-based realistic rendering of educational settings such as university campuses and school buildings with learning spaces for users to interact with media and each other. It enables information points and kiosks to be created and virtual tours and talks to be hosted by users. At XP Secondary School, Doncaster, UK, a new project based learning school developed around principles of Outward Bound and Expeditionary Learning Schools in the US, it is being used as a means of showcasing student work and innovative ethos/curriculum to a local, regional and global audience, by enabling student ambassadors to give virtual School tours. A unique development methodology has been developed in which Mirrador Ltd & XP School are working in partnership to explore the use of ALiS pedagogy to support the project-focussed fieldwork undertaken by learners. In this approach challenges around client-side customisation of their own virtual school environment are being overcome by the use of collaborative web spaces and communication between users and developers. The school's Head Teacher and senior staff are delighted both in the response by students and the curricular applications, including 'virtual crew' activities, celebrations of learning and student-led conferences. The platform has allowed virtual collaboration with other schools internationally, including virtual exchanges with Hobsonville Point Secondary School, New Zealand and High Tec High, California. This work is being evaluated by researchers from Sheffield Hallam University and disseminated via regional and national teacher and school networks of the Sheffield Institute of Education. This analysis is being fed back to Mirrador and XP School to refine functionality and maximise the educational value of the tool for other schools and educational settings. Blended Learning Model for Drawing Lesson in Professional Art Education

Keywords: virtual learning platform, 3D, engagement, virtual tours, collaboration

Blended Learning Model for Drawing Lesson in Professional Art Education

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Abstract: The purpose of this study is to explore a support system for beginners in professional drawing in a blended situation; classroom and networked environment. Drawing is one of the basic skills in learning art, it is a necessary skill for beginners to master. The acquisition of skills by individuals is difficult and is acquired by correct repetition. Our learners can receive advice and assessments from art experts without time and/or place constraints by using the proposed system. Our learners upload their drawing process data to our system after completing their drawing in his classroom. The instructor of this class and all of the class members are able to access the portfolio pages for today's results. A member of this class is able to refer to the drawing pictures and these process data in this portfolio. A drawing process viewer page is shown to him/her when a learner chooses a learner's drawing result. A learner can replay the drawing process from any point in time. Our system generates some advice for the drawing process based on these results. The instructor's comments are also confirmed on this page. The assessment results from both the system and the instructor are added to the time series. The learner can recognize which points are wrong and correct the drawing. Referring to experts' and others' drawing processes helps a learner understand the advice from the system and the tutor. Moreover, comparing one's drawing process with others could help them find new techniques and/or drawing methods. From 2013, our system has been worked in an art school in Japan at its basic drawing classes. During this practical usage, three expertise about drawing process assessment are found: A drawing process model with three phases, pedagogical role of number of drawing lines and active learning with drawing process sharing. In this paper, we propose a blended learning model for drawing lesson in professional art education based above three findings.

Keywords: drawing, digitasl pen, drawing process, e-learning, process assesment

Keeping Lecturers Engaged when Educating Masses

Tone Vold, Stig Holen
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Abstract: Most educational institutions engage in e-learning. For some institutions, like Hedmark University of Applied Sciences, e-learning has become a source of income to recon with. Some of the courses are only offered as e-learning, and some as net-and seminar-based. In our institution, the lecturers on the e-learning courses tend to return to seminar based or classroom (face to face) lecturing. A lot of focus has been on how to engage and activate students. A project at Hedmark University of Applied Science has focused on student activity and engagement in order to secure and maximize the experienced learning outcome. Several books have been written on the lecturer's role and provide tools for teaching via e-learning devices. There is motivation in mastering tools for providing learning material. However, little has up until now had a focus on the lecturer and what motivates the lecturer in his or her role within the e-learning space. Sometimes delivering the e-learning can be a lonely undertaking, feedback mostly from questions that may occur, assignments and finally the exams. But is it enough to know and master the tools for knowledge delivery? What really "drives" us as lecturers? What fuels our interest in lecturing?

Keywords: feedback, response, involvement, engagement

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