ECER 2009 Vienna

The European Conference on Educational Research

25 - 26 September 2009:
Post-Graduate and New Researchers' Pre-Conference
28 - 30 September 2009: Main Conference

Overview · **⬅ Submissions**   **User:** Karl.Steffens

Submission of a Contribution - Step 2

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Contribution Details

EERA Network: **16. ICT in Education and Training**
Technology Enhanced Learning: Problems and Promises
Submitted by: Dr. Karl Steffens (University of Cologne)
Keywords: collaborative learning, technology enhanced learning, self-regulated learning
Format of Presentation: Symposium
Alternative EERA Network: 6. Open Learning: Media, Environments and Cultures

Proposal Information
(e.g. topic, research question, objective, conceptual or theoretical framework …)

The symposium comprises eleven contributions from 23 authors coming from six European countries. It will present different perspectives on technology enhanced learning, pointing out problems and suggesting promises of this new kind of learning.

In the first part of the symposium, Richard Andrews from the University of London, U.K., argues that elearning requires a new theory of learning. Karl Steffens from Cologne University in Germany presents results of a European project on the potential of technology enhanced learning environments (TELEs) to support self-regulated learning (SRL), focusing on the question why some of these environments seem to support SRL to a greater extent than others. Ana Margarida Veiga Simão, Fátima Cruz Duarte & Paula Costa from Lisbon University in Portugal also address the question of the potential of TELEs to facilitate SRL. Their contribution focuses on how to adequately capture the complexity of SRL in TELEs.

In the second part, Juana M. Sancho and her colleagues from the University of Barcelona and the Open University of Catalonia in Spain will discuss a set of institutional dimensions with respect to their relevance for technology enhanced learning. Adriana Gewerc Barujel and Lourdes Montero Mesa from the Universidad de Santiago in Spain present a study which analyses the factors that hinder or facilitate the processes of change in innovation projects involving ICT in schools. Ton Mooij from OTEC (OUNL Heerlen) and ITS (RU Nijmegen) in the Netherlands has used the Internet to collect information from more than 80.000 students in the Netherlands on the complex phenomenon of violence in schools.

In the third part, Renate Schulz-Zander & Birgit Eickelmann, Birgit from TU Dortmund University in Germany have identified factors that may inhibit or impede ICT-enhanced teacher collaboration. Anthony Michael Coles from Birmingham City University in the United Kingdom explored the question whether students use social networking sites in addition or in preference to Moodle in their collaborative learning. Mauri Ahlberg, Eija Lehmuskallio and Arto Salonen fromUniversity of Helsinki in Finland investigated the relative benefits and drawbacks in using emails or an Internet platform for collaborative work.

In the forth part, Colin Harrison and Charles Crook from the University of Nottingham in the UK explored new ways of representing student learning with ICT through interactive online displays. Kristian Klett from the University of Cologne in Germany will present an online gaming platform that enables learners to self-regulate their learning.

Methodology, Methods, Research Instruments or Sources Used

The methodological approaches differ across contributions. The introductory contribution is more of a theoretical nature, addressing the requirements of a theory of elearning, while the last contribution presents an Internet platform to help students self-regulate their learning. All the other contributions are based on empirical research using questionnaires, interviews, observations or data collected with the help of the Internet.

Conclusions, Expected Outcomes or Findings

Basically, the symposium contributions will shed light on different aspects of technology enhanced learning. While the first part addresses this topic from a more theoretical and methodological point of view, the second part investigates institutional dimensions and their impact on technology enhanced learning. In the third part of the symposium, contributions focus on technology enhanced collaboration between teachers and students. The third part, finally, comprises two contributions which will present innovative uses of technology to enhance learning.
While most of the contributions are written from a national perspective, it is easy to see that the topics they address are of importance across all the European countries.

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Intent of Publication

At the moment, we do not have any intention the publish the contributions elsewhere.

Chair

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Discussant

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Organization(s): 1: University of Cologne, Germany; 2: OTEC (OUNL Heerlen), ITS (RU Nijmegen), Netherlands; 3: University of London; 4: University of Lisbon; 5: University of Barcelona; 6: Open University of Catalonia; 7: Universidad de Santiago; 8: TU Dortmund University; 9: Birmingham City University; 10: Helsinki University; 11: University of Nottingham

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Symposium Paper Abstracts

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TECHNOLOGY ENHANCED LEARNING: PROBLEMS AND PROMISES

PART 1: Theoretical and methodological approaches

Does e-learning require a new theory of learning?

Richard Andrews
Institute of Education, University of London, United Kingdom

There are a growing number of texts about e-learning, but most address only the problem of how to teach. None that I am aware of addresses the social implications of e-learning, its transformative effects, the social and technical interplay that affords and directs e-learning, and is currently reshaping educational practices. The research question, therefore, is 'does e-learning require a new theory of learning?'

Methodologically, this theoretical review belongs with the field of education, particularly technology-enhanced learning. But the notion 'technology-enhanced learning' implies that learning exists, and is somehow 'enhanced' by technology. The line that I will take suggests otherwise: that learning and technology are reciprocal and co-evolutionary.

Although e-learning practice is changing quickly, well developed theories take time to develop, test and modify. This paper will lay the groundwork for future theoretical work. As I have written before in outlining the case for the Sage *Handbook of E-Learning Research* (co-edited with Caroline Haythornthwaite) while "e-learning is a fast-changing field, what has been lacking in the literature is a work that emphasises key theoretical frameworks that underpin the field, addresses the complex interplay of technical, social, and organisational aspects of e-learning endeavours, and the relationship between research, theory, practice and policy."

Technology Enhanced Learning Environments: Potential facilitators of self-regulated learning ?

Karl Steffens

Department of Educational Research, University of Cologne, Germany

In the TELEPEERS project, a number of different Technology Enhanced Learning Environments (TELEs) were identified in different European universities that seemed to have a potential for supporting self-regulated learning (SRL) (Steffens, 2006). In order to more accurately assess this potential, a questionnaire was developed based on Zimmerman's distinction between the different phases in the process of SRL: (1) planning, (2) executing and monitoring and (3) evaluating (Zimmerman, 2000). At the same time, four different components of SRL were considered: cognitive, motivational, emotional and social. The TELEs being studied were categorised into three groups: (1) container systems with tutor support, (2) content systems with tutor support and (3) content systems without computer support. All TELEs were assessed in a peer review approach. Results showed that while all TELEs seemed to have some potential to foster SRL, container systems with tutor support received the highest rating for supporting SRL. In this contribution, we will explore several hypotheses as to why this might have been the case.

Learning in Technology Enhanced Learning Environments: Coming to grasps with complexity of the self-regulating learning process in a Technology Enhanced Learning Environments

Ana Margarida Veiga Simão, Fátima Cruz Duarte & Paula Costa

University of Lisbon, Psychology and Education Faculty, Portugal

The technological development of the twenty-first century has opened more interesting, powerful and attractive information sources and endless possibilities for technological enriched learning environment (TELEs) development. In these environments, the self-regulated learning (SRL) construct has been relevant and useful for the understanding of the process and attitudes that learners adopt when acquiring and developing knowledge and competencies

In light of this, the aim of this study is to present two instruments that allowed us to capture the complexity of the self-regulating learning process in a TELE. More specifically we will present an observation grid as well as the psychometric results of the questionnaire TELESTUDENT- SRL which allowed us to propose a new version of the instrument. With this aim we expect to contribute to the assessment of how SRL occurs in TELEs.

PART 2: Institutional dimensions

Technology- Enhanced Learning in Action: Institutional Dimensions and Issues

Juana M. Sancho(*), Silvina Casablancas(*), Teresa Romeu(**), Oscar

Moltó(*), Jörg Müller(**), Paulo Padilla Petry(*)

(*) University of Barcelona

(*) Open University of Catalonia

Discourse on technology enhanced learning refers to the use of digital technologies as powerful tools in education. Often, these tools are invested with the almost magical power of transforming for the better any teaching and learning context. Nobody can deny the impact of digital technologies on the way today's children and young people learn, relate to knowledge, and even build their values systems (Oblinger & Oblinger, 2005; Howe & Strauss, 2000). However, it does not seem clear how the traditional "grammar of schooling" (Tyack and Tobin, 1994) can be overcome just by supporting initiatives on technology enhanced learning. This paper is based in part on the results of the RTD project "Policy and Practice regarding ICT in Education: Implication for Educational Innovation and Improvement" (Ministerio de Educación y Ciencia. SEJ2007-67562. 2007-2010) in the context of which four case studies on the use of ICT in two primary and two secondary schools were carried out. We will explore a set of institutional dimensions ranging from school organisation to personal teachers believes about what teaching and learning means which may boost or inhibit technology enhanced learning.

Innovation projects with ICT in schools in Galicia (Spain)

Adriana Gewerc Barujel

Lourdes Montero Mesa

Universidad de Santiago

We present a study which analyses the factors that hinder or accelerate the processes of change in innovation projects involving ICT in schools. The assumption is that unless there is genuine innovation in schools, the incorporation of technology simply reproduces the old methodological learning practices.

ICT has potential if and only if, there is a rethinking of the teaching and learning processes in a particular context. Our research was based on four cases taken from a pre-school, two primary schools and a secondary school in Galicia (Spain) by means of a collaborative action research methodology in the usual stages: action, observation, and reflection.

The analysis reveals the complex nature of the factors affecting the changes implemented. It is shown that aspects of the following dimensions are dynamically intertwined:

- The socio-political context (national and regional education policies);
- School organization (school culture, atmosphere, communication, distribution of time and space, teaching and learning concepts, micro-politics, attitudes in the face of conflict)
- Teachers, their professional culture (educational and professional beliefs, attitude towards ICT, student perceptions), and their training and professional development.

In this symposium we will present evidence obtained from the monitoring process at each school, as well as general research conclusions.

Differences in pupil characteristics and motives for being a victim, perpetrator, and witness of violence in Dutch secondary education

Ton Mooij

OTEC (OUNL Heerlen), ITS (RU Nijmegen), Netherlands

Manifestations and consequences of antisocial and violent behaviour in and around schools are undesirable from pedagogical, social, and societal perspectives. Research shows that personal, cultural, educational, and demographical characteristics of pupils are related differently to their socially problematic or violent behaviour and the motives for this behaviour. Dependent on their role as a victim, perpetrator, or witness, and the actor or actors in the complementary role (other pupils, teachers, other school personnel, or family of pupils), different motives seem to be important in the behavioural violence relationships between different social actors in and around schools. However, systematic research into this issue seems to be very scarce, despite the fact that knowing more about such embedded motives could provide main clues to reducing or preventing violent behaviour in and around schools (cf. Loeber et al., 2008; Mooij, 2005). One of the reasons for this lack of information seems to be that using paper questionnaires in traditional survey or monitoring research, comprehensive clarification of these issues requires the involvement of large numbers of different persons in rather complicated research designs and processes. Nowadays, however, such investigations are made possible by the use of the Internet as a methodological procedure to collect data in comprehensive ways with multiple users (cf. Mooij, 2006, 2007). Using the Internet in this manner will allow us to investigate the field of violence in Dutch school in a very differentiated manner.

PART 3: Technology enhanced collaboration

Teacher collaboration concerning ICT-use to enhance learning and its essential conditions

Renate Schulz-Zander & Birgit Eickelmann, Birgit

TU Dortmund University

In general, teacher collaboration is regarded as important in school development and school improvement research. It is considered an important factor in supporting innovation in schools (Dexter, Seashore, & Anderson, 2002; Kelchtermanns, 2006), particularly for successfully integrating ICT in schools (Schulz-Zander et al., 2002; Tearle, 2004; Law, & Chow, 2008). Establishing Communities of Practice is considered essential in this process (Looi, Lim, & Chen, 2009). Studies show that the continuity and success of teachers' learning communities regarding ICT cannot be forced 'top down'; they need to be established in democratic processes in order to be sustainable (Tearle, 2004; Krumsvik, 2005; Shapley et al., 2006). Nevertheless, the dynamic of the development of new ICT applications and devices which claim to cultivate a continuous and flexible collaboration seems to be hard to establish in schools over a longer period of time. The research question in this paper therefore is: Which conditions contribute to successful ICT-centered teacher collaboration and which barriers to such collaboration have a negative impact on the efforts of teachers trying to enhance the learning of their students? Answers will be based on the data of the German follow-up study of SITES-M2.

The informal use of social networking sites for collaboration on initial teacher training programmes

Anthony Michael Coles
Birmingham City University, United Kingdom

Our initial teacher training programmes are supported by a Moodle-based virtual learning environment (VLE). We use a range of tools, including forums, journals, wikis and blogs to support the professional development of our trainee teachers. The VLE is also used as a repository for learning resources.

We have previously reported on the variable use of the VLE as a learning resource (Coles, 2008). During this study it emerged that social networking sites such as Facebook, MySpace and Bebo were used by trainees for communication relating to course issues. It was unclear whether trainees had made a conscious decision to select their personal networking sites in preference to Moodle, or whether these were used in addition to Moodle. Furthermore, since academic staff did not routinely survey comments on social networking sites, the nature of the discussion and relevance to the outcomes of their programme was unclear.

We wished to determine whether students use social networking sites instead of or in addition to Moodle. We were also interested in the nature of the discussion on these sites and how this discussion related to that on Moodle in terms of the requirements of a professional initial teacher training course. The results of the survey are discussed in relation to social-constructivist models of learning and set in the perspective of models of VLE use in other European countries.

Promoting creative collaborative learning by exchange of emails and by
Knowledge Forum®

Mauri Ahlberg, Eija Lehmuskallio & Arto Salonen,
Department of Applied Sciences of Education, University of Helsinki, Finland

Information and Communication Technologies allow for various forms of collaborative learning. Two of these will be studied in this contribution: (1) the exchange of emails and (2) the use of Knowledge Forum® by doctoral students from the University of Helsinki. Both forms of collaborative learning clearly have promoted creative collaborative learning, and both have specific problems.

The first case to be studied is collaborated learning based on a new public online service for biodiversity education called NatureGate®. There is a history of more than three years of accumulated exchanges of thousands of emails between two of the founding members of NatureGate® online services. Critical incidents of messages will be discussed in relation to problems and promises of technology enhanced learning. The second case refers to the use of Knowledge Forum® to promote education for sustainable development. In this second case a new type of questionnaire is created to promote education for sustainable development. Also both theory and practice of sustainable development are cumulatively discussed.

In our contribution, we will compare the two ICT uses with respect to their potential to foster collaborative learning.

PART 4: Innovative uses

Finding new ways of representing student learning with ICT through interactive online displays

Colin Harrison, Charles Crook University of Nottingham, UK

Impact 2009 is a government-funded enquiry into the nature of learning using ICT in schools in the UK. The project's goal is to generate case studies of the ecology of learning in three types of ICT environment, each of which exhibits a specific pedagogical focus: an Internet/personal technology focus; a curriculum and content focus; a VLE/managed learning focus. The research questions driving the data collection cluster around learning: how are teachers using new technologies, and in what contexts? What pedagogical intentions and purposes are underpinning these approaches? How do teachers believe students are learning using these approaches, and what has enabled these teachers to become confident in delivering this approach? The project team has been encouraged by Becta, the English government's technology agency, to explore new methodologies for representing their findings to teachers, and in this presentation will demonstrate some of the approaches they have been trialling in collaboration with the Learning Sciences Research Institute at the University of Nottingham. These include online 3-D maps of a school featuring departmentally-located tag clouds and other semantic network representations of teachers' beliefs and values; other related links attempt to show diagrammatically other support and power structures within a school.

Serious Games - Creating a dynamic individualized tutoring system.

Kristian Klett

Department of Educational Research, University of Cologne, Germany

With our online learning platform *http://www.studybuddy.de* we provide a user-generated content gaming platform that enables learners to self-regulate their learning processes through the choice of a variety of learning conditions. We found that the game itself and the fact that it is played along with peers increases motivation for learning. However, we also found that students in the absence of appropriate contents do not tend to create suitable games for themselves, even if they were taught how to do so. Instead they rather turn to other games or to the Internet where the distraction is huge.

For this reason, we focus on creating a tutoring system that helps learners to achieve specific realistic goals like preparing for a standardised test in math. The innovative aspect in this system is the dynamic individualization of the learning process. The system collects data that reflect the skills that a learner already has with regard to a specific learning goal. Then these data are taken to propose the path that the learner should take in order to acquire the skills to be tested. With each game these data are refined, thus refining the leaning path.

We will present our learning environment to show how it provides highly individualized support for learners at all levels.

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