

Workshop ‘Creation of technology-enhanced learning solutions for 24/7 professionals’

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Abstract. Traditional training methods for people working in 24/7 organizations no longer suffice. These methods are too rigid in their approach and fail to prepare 24/7 professionals in time. During this workshop we will explore four principles for the development of learning solutions for 24/7 professionals that overcome the problems of traditional training methods. First, facilitating on-the-job learning will shorten the time required for training and instruction and provide better transfer to actual practice. Second, stimulating continuous learning will improve and prolong personnel readiness. Third, incorporating the real-life context in the training, aims at making better use of competences in practice. Fourth and last, a rapid development approach can be used, saving development time and cost and making learning environments quickly available. Workshop contributions are research projects aiming at the grounded development of learning solutions for 24/7 professionals, and illustrating the four designing principles.

Workshop relevance to the EC-TEL Conference

The objective of this workshop is to provide an interdisciplinary forum in which scientists and practitioners can exchange ideas on the integration of four principles when facing the educational challenges for 24/7 professionals: on-the-job learning, continuous learning, incorporation of the real-life context in the training and rapid development.

This workshop will stimulate the discussion on the integration of findings from research on learning and those on learning technology. A more complete integration of the two would lead to technology-enhanced learning environments that suit (adult) 24/7 learners better.

Educational challenges for 24/7 professionals

For many organisations, the issue is how to make people available more quickly and in a more flexible way, while still maintaining quality. This applies especially to employees in the technical, logistics, manufacturing, and petrochemical industries, as

well as to military and safety & security organisations, viz. the police, the fire services and medical support troops. The employees of these organisations operating on a basis of 24/7 continuous services are increasingly deployed in new and demanding environments, involving large responsibilities. Large information flows have to be processed in ever changing teams and environments. The constant external pressure by for example politics and the media has made their work more complex. Teams and experts will have to be able to acquire these skills for complex tasks on their own and by their own initiative. This requires an improved self-directedness and a problem-solving capability. At the same time, organisations have increasingly less time to prepare these people for their work in an adequate way, because they have to be available for action for 24 hours a day and 7 days a week ('24/7'). Moreover, these professional groups often lack competent instructors, while having only limited means to develop, provide and evaluate training and instruction (Salas, Milham, & Bowers, 2003).

The result of all the developments outlined above is that there is a structural shortage of time for training and instruction, so that the challenge has become how to enable 24/7 professionals to prepare themselves for critical tasks more quickly, more effectively, and indeed also *last minute*.

During this workshop, four guiding principles for the development of the required learning solutions will be addressed. These are, respectively, (1) facilitating on-the-job learning, (2) stimulating continuous learning, (3) incorporating the real-life context, and (4) using rapid development approaches. Together, they meet the characteristics of adult learning (Percival, 1996). The resulting new and usually attractive learning solutions, including the latest learning technologies and instructional design, would ideally entice the 24/7 professionals to open up to learning itself. Moreover, these new types of learning environments are in better sync with the learning preferences of younger people – the so-called net generation – meaning that expensive dropping out of education could be avoided. Ultimately, this will lead to people having a self-learning capability and self-directedness, resulting in more effective learning (in terms of transfer of training) and efficient learning (in terms of time), thus bringing the operational targets of 24/7 organisations within reach.

Facilitating on-the-job learning

For 24/7 organisations, formal training takes too long to develop and deliver and has too little impact on their operational targets. Therefore, traditionally, such organisations have focused on integrating working and learning. The obvious advantage is that employees no longer have to be temporarily taken out of the working process. Second, the information coming from the workplace itself can be used to provide realistic learning tasks and learning environments. This means that the learning period can be kept short, whereas the impact of learning (transfer and retention) is still high (Birnbrauer, 1987).

Stimulating continuous learning

In our rapidly changing society it is no longer enough to complete a finite education; learning will have to continue after that. One of the goals of education should, therefore, be to create learners for life (Du Bois & Staley, 1997). In this sense, self-directed learning is described as *the* way of learning for the future (Percival, 1996). Employees who can learn to become self-directed learners consciously monitor their own performance, direct their own learning process and can, in this way, react proactively to changing circumstances (Stubbé & Theunissen, 2008). This will improve the quality of their work and make their learning more effective.

Incorporating the real-life context in the training

The most important drawback of conventional training techniques is the lack of immersion in the real-life context. It turns out that tasks, which are mastered in traditional training conditions, are more difficult to carry out under harsh operational conditions. A typical feature of 24/7 organisations is that employees are subjected to physical and mental stressors (Theunissen et al., 2007). The effective critical task performance in extreme conditions can be improved by incorporating contextual factors into the learning curriculum (Freeman, Thompson, Allely, Sobel, & Stansfield, 1997). Subjects will be less distracted and hindered by the context. Furthermore, the coping techniques evoked will help the subjects to endure the extreme context.

Using a rapid development approach

This fourth principle concentrates on the instructional design process. The quickly changing requirements for people performing critical tasks imply that developers and instructors need to respond correspondingly. The learning environments will have to be scalable and generative and suitable for made-to-measure (customised) learning, (Gibbons, Nelson, & Richards, 2000). New development models, based on the rapid development approach from the software industry and lean production methods from the manufacturing industry are becoming more popular (Boot, van Merriënboer, & Theunissen, 2008). Rapid development is based on iteration instead of linear waterfall models like ADDIE and ISD. The interim versions of the learning environment are being put to the test immediately, making it possible to start training and instructing at an early stage as well, thus saving precious time.

About the organizers

The organizers participate in a unique research group dedicated to the development and testing of learning solutions for 24/7 professionals. These learning solutions imply both innovative learning technology and didactics for adult learning. The

presented principles are derived from their research work with 24/7 professionals and put into action in several research projects. For instance: Ubiquitous learning for first responders in a netcentric organization; Rapid development of training for an integrated test system that is being developed; Rapid scenario development that incorporates the real-life context and stimulates continuous learning.

Workshop Outline

The workshop is intended to advance the understanding and support of the design of technology-enhanced learning solutions for 24/7 professionals. The workshop solicits original papers that present promising approaches and applications in the next four areas: the design of innovative learning environments, the implementation of new technological learning solutions, results of empirical studies on socio-cognitive processes in learning or field studies regarding the use of learning technologies in context.

The workshop is planned as a half-day event (about 4 hours). To enable some flexibility regarding the number of contributions selected for presentation we divide the workshop program roughly into three blocks:

1. Introduction to the workshop topic, papers and presenters by the organizers. [30 minutes]
2. Two sessions for presentation of papers; each session is 80 minutes and there is a 20-minute break between the two sessions. The optimal number of papers per sessions is 3, with gives each presenter about 15-20 minutes time for presentation followed by 5-10 minutes of discussion for each paper. The presentation and discussion timeslots can be adapted to accommodate more or less than 3 papers per session (min. 2 papers, max. 4 papers), depending on the number and quality of submissions. [3 hours]
3. Brief conclusion of the workshop by the organizers and plenary discussion of topics and papers including the audience. [30 minutes]

This arrangement allows for a maximum of 8 papers to be presented; if there is a higher number of quality submissions and accepted papers than expected, we will contact the ECTEL workshop chair to reach a solution.

Organizational Timeline

Given the deadlines published on the ECTEL workshop website (Notification of Workshop Acceptance: May 7, 2008; Camera Ready Proceedings of Workshop: August 31, 2008; Workshop: September 17, 2008) the workshop organizational schedule is proposed as follows:

While waiting for the acceptance letter:

- Prepare CfP and workshop website

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- Contact international experts in the workshop topics as potential program committee members
- Collect e-mail addresses and pertinent mailing lists for distribution of CfP

May 7, 2008: Acceptance Letter; if the workshop is accepted:

- Send out CfP
- Actively contact potential contributors and participants
- Prepare peer review forms

July 18, 2008: Paper Submission Deadline

- Distribute papers and peer review forms to program committee members. Peer review will be double blind; each paper is to be reviewed by three program committee members.

July 30, 2008: Peer Review Deadline

- Collect missing peer reviews
- Decide accept/reject for each paper and prepare notifications based on peer review results
- Distribute notifications to authors
- Send publisher instructions for camera ready papers to authors of accepted papers
- Prepare introductory note for workshop proceedings

August 17, 2008: Camera Ready Paper Due

- Collect camera ready papers
- Compile workshop proceedings
- Finalize workshop schedule
- Send presentation guidelines to authors of accepted papers

August 31, 2008: Workshop Proceedings Camera Ready Deadline

- Prepare workshop

September 17, 2008: Workshop @ ECTEL

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