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Groupware: Issues and Applications

J.UCS Special Issue

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The articles of this special issue are significantly extended versions of selected papers presented at the 12th International Workshop on Groupware (CRIWG 2006) held in Medina del Campo, Spain in September 2006. The CRIWG workshops are annual events which have a single track of relatively few papers, providing ample time for lively and constructive discussions during and between sessions. The 2006 version had 34 accepted papers out of 101 submissions, from which six were selected to be invited to this special issue. The invited papers were reviewed by three anonymous referees each and had two rounds of improvement.

The first article is entitled "The Trade-Offs of Blending Synchronous and Asynchronous Communication Services to Support Contextual Collaboration" (W. Geyer, R.S. Filho, B. Brownholtz, D.F. Redmiles). The article argues that contextual collaboration seamlessly integrates existing groupware technologies into a user experience that combines synchronous and asynchronous interactions. A support system should efficiently cope with the fast switching and integration of various modes of interaction. To this end, the authors propose generic shared objects that provide building blocks for supporting contextual collaboration applications. They describe a native implementation of this model and evaluate its behavior under different media traffic conditions.

The second article is "Ontoolcole: Supporting Educators in the Semantic Search of CSCL Tools" (G. Vega-Gorgojo, M.L. Bote-Lorenzo, E. Gómez-Sánchez, J.I. Asensio-Pérez, Y.A. Dimitriadis). The scenario that this article presents is the construction of collaborative learning systems following the service-oriented computing paradigm. Within this paradigm, discovering appropriate services is a challenging task that requires the description of task capabilities. The authors propose Ontoolcole, an ontology of collaborative learning tools intended to support educators in the search of CSCL tools. Ontoolcole incorporates an artifact module, a task-level coordination module and the description of static information resources, further

improving the capabilities to describe complex CSCL tools. A preliminary prototype of the intended target application of Ontoolcole is presented. A case study with practitioners was carried out and its results are presented and discussed.

The third article is "Seamless Transition between Connected and Disconnected Collaborative Interaction" (S. Lukosch). This article discusses the problems that arise when collaborative systems are employed by nomadic users, a typical case in the present mobility-oriented world. The author presents the requirements for such an extension based on a typical collaborative scenario, and he builds a solution for a web-based collaborative learning system, called CURE, which has been widely used in an important German distance university. The pattern-based approach for the presentation of the proposed solution and an extensive discussion on alternative approaches contribute to a deeper understanding and adoption of successful solutions for this significant problem.

The fourth article is entitled "Integrating Service-Oriented Mobile Units to Support Collaboration in Ad-hoc Scenarios" (A. Neyem, S.F. Ochoa, J.A. Pino). In this article, the authors analyze the problem of making collaboration feasible in the case of mobile workers in which stable and centralized access to a fixed network is neither available nor efficient. The emergency scenario that is thoroughly described in the paper shows the importance of this problem and highlights the requirements that have to be met for a reasonable solution. The main proposal consists of an architecture for middleware that may enable collaboration in such ad-hoc scenarios, as well as a lightweight implementation for mobile devices that follows a service-oriented approach. Experimental results and a preliminary evaluation study show that the architecture is feasible and the implemented solution is robust and efficient.

The fifth article addresses the role of Personal Digital Assistants (PDAs) in electronic meetings. Its title is "Using PDAs in Meetings: Patterns, Architecture and Components" (G. Zurita, P. Antunes, L. Carrico, F. Baytelman, M. Sa, N. Baloian). The article characterizes several real-world scenarios of PDA usage in meetings using a pattern language. The authors propose an upper-layer meeting middleware that is anchored in these scenarios and addresses three major goals: defining a common architecture and set of components for meeting systems; standardizing meeting memory and process data structures commonly managed by electronic meetings; and supporting XML-based interoperability between these components. The patterns, architecture and components were validated through their adoption in three applications.

The final article is called "The Remote Control Approach – An Architecture for Adaptive Scripting across Collaborative Learning Environments" (A. Harrer, N. Malzahn, A. Wichmann). The article deals with the important problem of embedding computationally formalized learning designs in existing computer-supported collaborative environments. The proposed remote control architecture allows the generation of learning designs or scripts with an appropriate tool, while being able to include them in a flexible way in different CSCL systems. This approach is illustrated through two significant examples, i.e., a scientific inquiry learning design that is used within the FreeStyler tool, as well as a collaborative modeling process adaptively embedded in the existing CoolModes environment. The authors provide useful insight on how to bridge the two worlds of design and enactment environments, and therefore

enable a wider and architecturally sound adoption of the computationally formalized CSCL scripts.

As a whole, this set of articles provides a perspective on issues and experiences in CSCW and CSCL. We are much indebted to the referees for their excellent work in suggesting ways to improve the previous versions of these research contributions. We also want to thank Dr. Hermann Maurer, Editor-in-Chief of the journal, for accepting our proposal for this special issue and Mag. Dana Kaiser, assistant editor of the journal, for kindly helping us with the details of this issue.

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