Special Section on Advances in Adaptive and Affective Learning

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INTRODUCTION

In the last decade there has been an increasing research interest towards adaptivity in e-Learning. This is mainly due to the idea that traditional approaches cannot be adopted in distance learning, characterized by individualized learning, which has to follow specific requirements and preferences of the learner. Adaptation can occur at different levels, such as at *Interaction level*, supporting the user's interaction with the system; at *Course Delivery level*, aiming at reaching the best fit between the course contents and the user profile/requirements; at *Content Discovery and Assembly* level, adaptive techniques are adopted to discover and assemble learning content from distributed repositories; the *Adaptive Collaboration* level incorporates adaptive learning inside collaborative environments like forums or resource sharing applications, i.e. creating groups of people with the same interest.

Together with adaptivity, also the affective domain is critical when instruction is conducted in distance learning modality, without the presence of a tutor.

Affective learning is related to the learners' attitudes, motivations, beliefs, and emotions. As an example, one of the factors enhancing motivation within the social dimension is *reputation*, which make evident the contributions of each learner to the community. Affect is critical during the learning process since learning is influenced by attitude, motivation, and other affective factors, which are neither directly observable nor easily measurable. As a consequence, often this aspect is neglected and only students' performances are evaluated.

ARTICLE OVERVIEW

The International Workshop on Distance Education Technologies (DET) has been established as renowned event covering the newest trends in distance education technologies. DET workshop is closely associated with the International Conference on Distributed Multimedia Systems (DMS) workshop on the one hand, and with the IJDET journal on the other hand and focuses on creative solutions on distance education and combines several advanced topics on

design, implementation, and applications of e-learning. Submissions cover novel approaches on distance learning tools, communication mechanisms, distance learning and culture, new educational technologies, virtual worlds and serious games, mobile learning, and distance learning and the arts.

In 2011, this workshop was held in conjunction with the 17th International Conference on Distributed Multimedia Systems in Florence. Authors that submitted work to the DET 2011 workshop came from United States, Asia, Europe, with remarkably many submissions from Italy.

This special section includes three outstanding out of the twenty submissions we received for DET 2011. After an already rigorous review process at the conference, we invited only three authors to submit an extended version of their contribution to this special section. All these submissions were of very high quality, but unfortunately it was only possible to include the following top-ranked submissions into this special section, which – however – give an excellent overview of adaptive and affective learning topic covered in DET 2011.

The first contribution from Pierpaolo Di Bitonto, Teresa Roselli, Veronica Rossano, and Maria Sinatra (University of Bari, Italy) aims at presenting the evolution of different solutions of adaptive e-learning to retrieve Learning Objects (LOs) and to tailor learning resources and paths in SCORM compliant distance learning environments. The paper discusses the main research questions such as What, How and Why the research has been focused on giving different kinds of answers to these questions. Then three main technological approaches adopted by the authors have been described, such as a multi-agent system, an adaptive SCORM compliant package and an e-learning recommender system. This paper won the Best Paper Awards of the DET 2011 workshop.

The next article from Maria De Marsico, Andrea Sterbini, and Marco Temperini (Sapienza University of Rome, Italy) concerns the integration between personalized learning paths and collaborative learning activities. To this aim this paper presents the combination of the functions of two pre-existing prototypes of web-based systems, to investigate how the above integration can merge adaptive and social e-learning. Also a mapping between the student model and the definition of Vygotskij's Autonomous Problem Solving and Proximal Development regions is presented, aiming at providing an appropriate guidance to the learner, especially when selecting a social learning activity.

The last (but not least) work from Luigi Colazzo, Andrea Molinari, and Nicola Villa (University of Trento, Italy) discusses the potential of three different learning approaches and the metaphor adopted by each of them. In particular, the metaphor of "course" adopted by LMSs, the social network metaphor related to web 2.0 technologies and the learning approach based on (virtual) community, and where the subject is just a participant that adheres to the rules of the community, with duties, rights, tasks to do and objectives to achieve.

CONCLUSION AND ACKNOWLEDGMENT

from those excellent submissions. Last but not least, we want to thank all those participants who made their way to Florence, allowing DET 2011 to became a success. We hope this section of DET best papers will be of interest to the readers and will encourage future innovative and synergetic research. We look forward to the IJDET next issue of the best papers of the DET 2013 workshop that will be hold in Brighton, United Kingdom.

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