

# Welcome to the April-June 2015 Issue of the *IEEE Transactions on Learning Technologies (TLT)*

Peter Brusilovsky and Mike Sharples

THIS is the first regular journal issue of the year, following the special issue on “Seamless, Ubiquitous, and Contextual Learning”. In general, the journal alternates regular and special issues to better represent the trends in our field. Our next special issue on “Wearable Technologies and the Internet of Things in Education and Training” has already been announced and its call for papers is now available on the journal home page. Here, we are pleased to present six papers that cover the popular topics of support for collaboration, classroom orchestration, learning analytics, open learner modeling, and virtual labs.

The paper “A Self-Adaptive Multi-Agent System Approach for Collaborative Mobile Learning” by Didac Gil de la Iglesia, Juan Felipe Calderon, Danny Weyns, Marcelo Milrad, and Miguel Nussbaum discusses a novel software architecture for collaborative mobile learning based on a multi-agent approach. The paper reviews the problems and the needs of collaborative mobile learning and proposes a multi-agent architecture to meet these needs. The key idea of this architecture is to combine benefits of multi-agent organization with self-adaptation mechanisms. The paper also presents two implementations that follow the general design of the proposed architecture.

In “Dynamic Group Formation as an Approach to Collaborative Learning Support”, Ivan Srba and Maria Bielikova propose an iterative process for allocating learners to groups such that they are initially assigned at random, then the characteristics of their learning activities are interrogated to form them into more compatible groupings. A study with 110 students on the PopCorm collaboration platform showed that the quality of collaboration, as measured by seven automated indicators, was higher for the dynamic method compared both to random allocation and to a k-means clustering method.

The issue of how to notify teachers about group interactions in the classroom is addressed in the paper “MTFeedback: Providing Notifications to Enhance Teacher Awareness of Small Group Work in the Classroom”, by Roberto Martinez-Maldonado, Andrew Clayphan, Kalina Yacef, and Judy Kay. The MTFeedback system captures aspects of students’ activity, such as changes to artefacts created by the groups, and offers alerts to the teacher based on configurable rules. A study of 95 higher education students creating collaborative concept maps on tabletop displays showed that teachers took advantage of the alerts to offer advice, though they responded at varying pace, and in most cases the teacher attention resulted in improved quality of the students’ artefacts.

In her paper “Constructing Interpretative Views of Learners’ Interaction Behavior in an Open Learner Model”, Kyparisia A. Papanikolaou attempts to bridge the gap between open learner modelling and learning analytics. The paper introduces the INSPIREus adaptive hypermedia system that offers visual indicators of learner interaction behaviour such as time distribution, indicator of efforts, and indicator of learned control. INSPIREus also encourages students to share interaction data with their peers in a group or across the whole class. An empirical study of this new approach provided evidence for the expressiveness of the indicators and demonstrated that most students managed to interpret their interaction data.

In “Measuring and Visualizing Students’ Behavioral Engagement in Writing Activities”, Ming Liu, Rafael A. Calvo, Abelardo Pardo, and Andrew Martin propose a method to measure the participation of students in appropriate writing and revising activities with Google Docs. Their Tracer system provides three visualizations of activity over time which are shown as feedback to the students. A study with 23 university students engaged individually in drafting and revising documents showed a moderate, though non-significant, correlation between the measured level of engagement and the level reported by participants.

The paper “A Web-Based Visualization and Animation Platform for Digital Logic Design” by Abdulhadi Shoufan, Zheng Lu, and Sorin A. Huss contributes to the research topic of virtual labs. It presents an innovative web-based educational environment, DLD-VISU, that supports exploration and self-assessments in the area of digital logic design. Several rounds of evaluation described in the paper demonstrated the effectiveness of DLD-VISU and the visual exploration approach supported by it.

Enjoy your reading and consider *TLT* for sharing the results of your exciting projects!

Peter Brusilovsky, *Editor-in-Chief*  
Mike Sharples, *Associate Editor-in-Chief*

