GUEST EDITORS' INTRODUCTION

SPECIAL ISSUE "ASSESSMENT OF COLLABORATIVE PROBLEM SOLVING"

Our call for this special issue is to solicit papers for "Assessment in CSCL" which spans assessment of collaboration or collaborative problem solving (CPS) competencies, assessment approaches and methods in computer-supported collaborative learning (CSCL), and assessment tools and applications in CSCL. It turns out that the papers we have accepted for this issue fall into the category of assessment of collaborative problem solving competencies, and the related competencies of collective creativity. Hence we would like to re-theme this special issue as "Assessment of Collaborative Problem Solving."

Three papers are featured in this special issue.

The first paper by Care and Griffin, *An Approach to Assessment of Collaborative Problem Solving*, discusses an approach to assess collaborative problem solving within the general policy framework of 21st century skills. The paper describes and rationalizes the overall assessment that was developed and validated for assessing the construct of CPS arising from the Assessment and Teaching of 21st Century Skills (ATC21S) project. The paper illustrates how we might take one of the 21st century skills, conceptualize the construct, and outline the process of moving from the definition to the assessment of the set of skills involved so that these skills might vary across more and less adept individuals.

The second paper by Rosen and Foltz, *Assessing Collaborative Problem Solving through Automated Technologies*, describes the framework for collaborative problem solving (CPS) that will form one of the assessments of OECD's Programme for International Student Assessment (PISA) 2015. In this assessment approach, to assess collaboration in a mass-scale, standardized and reliable way, the student tester collaborates not with other student testers, but with one or more pre-progammed computer agents in solving a given task collaboratively together. The paper describes the rationale behind this assessment approach, and reports on an empirical study that compared performance, communication, and motivation of human-agent dyads versus human-human dyads performing a CPS task. Like in Care and Griffin's paper, the rationale behind the CPS assessment framework rests on the premise that collaborative problem solving is a skill that could be measured on an individual level.

The third paper by Tan et al., *A Dialogic Framework for Assessing Collective Creativity in Computer-Supported Collaborative Problem-Solving Tasks*, reports a

dialogic framework for assessing collective creativity in CSCL. Collective creativity is conceptualised as "a multi-dimensional group expertise encompassing a suite of metacognitive, cognitive, social and communicative skills and sub-skill components, namely, reflexivity, divergent production, convergent production, and prosocial interaction". The paper presents a content-analytic coding scheme, and applies it to a subset of the dialogic interactions generated on an ATC21S collaborative task. Statistically significant differences were found between groups who could solve the task successfully and the groups who could not. The framework can help both researchers and practitioners to further probe the definition and development of competencies that underlie successful collaborative and creative problem-solving in CSCL contexts.

The work presented in these three papers demonstrates the burgeoning work in the field of assessment of collaborative problem solving and other 21st century skills competencies. We hope these papers can further stimulate more research in this field in our community.

We would like to thank the authors who submitted to this special issue, and our reviewers for their comments and suggestions.

Chee-Kit LOOI & Wenli CHEN
Guest Editors