

Call for Papers

“Guiding Collaborative Teams using Intelligent Tutoring Systems: Insight to the Unique Challenges of Tutoring Small Teams vs. Individual Learners”

A workshop in association with the 12th International Conference on Intelligent Tutoring Systems to be held June 5-9th, 2014, Honolulu, Hawaii, USA
(WORKSHOP WILL BE HELD ON June 5TH or 6TH)

Background/Scope and Topics of Interest:

The purpose of this workshop is to provide this Community with an in-depth exploration of the key issues and challenges surrounding collaborative team tutoring in intelligent tutoring systems (ITS). The Community is already aware and possess extensive knowledge of the complexities involved in providing individual one-to-one tutoring with ITS; however, expanding ITS to support geographically-distributed team training presents additional technical challenges yet to be explored. Consider the following two Figures:

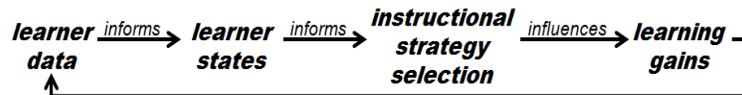


Figure 1: Adaptive Tutoring Learning Effect Chain for Individual Tutoring (Sottolare, 2012)

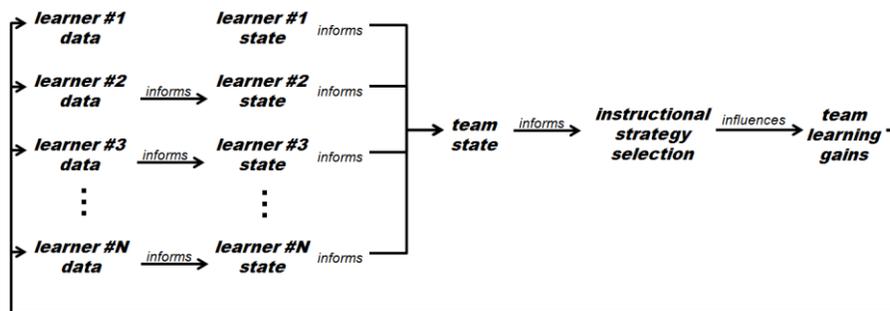


Figure 2: Notional Adaptive Tutoring Learning Effect Chain for Team Tutoring (Fletcher & Sottolare, 2013)

Figures 1 and 2 represent the ideal linkages of an adaptive tutoring learning effect chain for individuals (Figure 1) and for teams (Figure 2) and is the goal of the Army Research Laboratory’s (ARL’s) learner-centric approach towards tutoring through their development of a Generalized Intelligent Framework for Tutoring (GIFT: www.gifttutoring.org). When it comes team ITS, there is an added workload of coordinating states of individual team members so a more comprehensive picture of the team state can be developed. More specifically, the ITS needs to understand the state (e.g., cognitive, affective, motivational, psychomotor) of each distributed team member, their individual performance, the communication and interactions of the team members, the contributions of each individual’s performance and state and interactions to the collective performance of the team. Moreover, inputs to the “team model” might include the state of trust between individual team members, progress towards team goals, reassessment of team goals based on priorities, and the distribution of workload for each member (Sottolare, Holden, Brawner, and Goldberg, 2011).

ARL is now looking to make GIFT extendable to team tutoring; however, there are many challenges must be better understood and addressed. These challenges include, but are not limited to: (1) low-cost, passive sensing of

physiological data; (2) Classification of Affect and Trust; (3) Selection of Instructional Strategies; (4) Tracking Multi-Dimensional States; (5) Real-time Interaction and Communication; and (6) Clarity on the relationships between team and individual performance (Sottolare, Holden, Brawner, and Goldberg, 2011; Fletcher and Sottolare, 2013).

This workshop closely aligns the theme of ITS 2014, “*Creating Fertile Soil for Learning Interactions.*” Furthermore, this workshop aligns with the following topics of interest: (1) Intelligent Tutoring; (2) Collaborative and group learning, communities of practice, and social networks; (3) Adaptive support for learning, models of learners, diagnosis and feedback; and (4) Modeling of motivation, metacognition, and affect aspects of learning. While literature and research relating to aspect of team training, such as team performance and cognition, is substantial, such research related to team tutoring (more specifically adaptive computer-based tutoring systems for team tutoring) is scarce and limited. GIFT developers anticipate providing authoring tools to accommodate a variety of user populations including learners, domain experts, instructional system designers, training and tutoring system developers, trainers & teachers, and researchers. Future plans include incorporating empirically evaluated models of teaching and learning as well as intelligent technologies for both individualized and small team tutoring. The GIFT developers hope to benefit from the insight of experts in the ITS field as future versions are developed and released to the public. This workshop would be a forum for such insight that could influence the future development of GIFT’s adaptive team tutoring initiatives.

The organizing committee invites speakers to submit papers on their experiences of any of the following capacities:

- **Theme: Aspects of Learner Modeling for Small Teams:** for researchers who are evaluating any learner modeling elements (i.e., cognitive, affective, motivational, psychomotor, performance, etc.) pertaining to team tutoring. Papers should provide suggestions or recommendations for GIFT design enhancements.
- **Theme: Team Communication and Interactions in ITS:** for researchers who are evaluating elements of team communication, trust, and interaction pertaining to team training or tutoring. Papers should provide suggestions or recommendations for GIFT design enhancements.
- **Theme: Tutor Support and Feedback for Team Tutoring:** for researchers who have insight on ideal strategies for tutor actions (i.e., support, feedback, etc.) for team tutoring. Papers should provide suggestions or recommendations for GIFT design enhancements.

CITATIONS:

- Fletcher, D. and R. Sottolare. “Shared Mental Models of Cognition for Intelligent Tutoring of Teams.” Design Recommendations for Intelligent Tutoring Systems – Volume 1: Learner Modeling. (In Eds. Sottolare, Graesser, Hu, and Holden). Chapter 22, pp. 239-254.
- Salas, E., Shuffler, M. L., Thayer, A. L., Bedwell, W. L., & Lazzara, E. H. (in press). Understanding and Improving Teamwork in Organizations: A Scientifically Based Practical Guide. *Human Resource Management*.
- Sottolare, R., Holden, H., Brawner, K., and B. Goldberg . (2011). Challenges and Emerging Concepts in the Development of Adaptive, Computer-Based Tutoring Systems for Team Training. Proceedings of the International/Industry Training, Simulation, and Education Conference (IITSEC) 2011, Orlando, FL, November 2011.
- Sottolare, R. (2012). Considerations in the development of an ontology for a Generalized Intelligent Framework for Tutoring. *International Defense & Homeland Security Simulation Workshop* in Proceedings of the I3M Conference. Vienna, Austria, September 2012.

Formatting instructions:

Please ensure that your papers are formatted correctly and are within the 8-page limit. Go to the [Information for LNCS Authors](#). Download the LNCS template for the word processing software you would like to use. E.g., when using Word 2007, download LNCS-Office2007.zip, when using Word 97-2003, download word.zip, when using LaTeX, download lncs.zip, and so forth. Note that most but not all of these downloads are listed at the top right (notable exception: LNCS-Office2007.zip is listed further down). You may ascertain which file to download for use with your preferred word processor by clicking on the relevant "Proceedings and Other Multiauthor Volumes" link. For Word 2007 this actually gets you to the download link. Unzip the file and study the instructions.

Submission instructions:

Paper submissions should be 8 pages **maximum** in Springer LNCS format and submitted to <https://www.easychair.org/conferences/?conf=its2014wsteamvsindiv>. Only submissions in .doc (Word) format will be accepted. All submissions should be in English. Address any questions to heather.k.holden@us.army.mil and robert.sottolare@us.army.mil.

Important dates:

Workshop paper submissions due:	March 20, 2014
Decisions communicated to authors:	April 20, 2014
Camera ready papers due:	May 5, 2014
Workshop date:	June 5 or 6, 2014

Workshop Organizers and Chairs

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