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Enhancing mathematical communication for virtual math teams

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The Virtual Math Teams (VMT) Project has conducted research for the past six years on how to support small teams of students around the world to collaborate online in discussions of stimulating mathematical topics. The project has developed an extensive web-based environment and conducted about 400 sessions of usage. Analysis of usage has resulted in over a hundred academic publications—the most important of which are collected in *Studying Virtual Math Teams* (Stahl, 2009)—and doctoral dissertations (see summaries in Çakır, Zemel, & Stahl, 2009; Sarmiento & Stahl, 2008).

The VMT environment currently includes a social-networking portal, a Java application that integrates synchronous text chat with a shared whiteboard, social awareness indicators, and an asynchronous community wiki (http://vmt.mathforum.org/VMTLobby/). The project plans to integrate the dynamic geometry/algebra/calculus GeoGebra system (http://www.geogebra.org) into the VMT environment this summer. The port of the open source GeoGebra code will enable it to function in a multi-user, synchronous online system. Integration into the VMT environment will support simultaneous text chat discussion of dynamic math diagrams, graphical referencing between chat and diagram, scrollable history of chat and diagrams, and pasting of diagrams into the associated wiki.

The integration of GeoGebra into the VMT environment will provide significant mathematical content and functionality to enhance mathematical exploration and communication. The integration includes plans to support importing and exporting of GeoGebra dynamic worksheets; this will allow teachers and students to take advantage of available curricular materials. The Math Forum plans to release the new system for worldwide usage, providing a convenient online venue for students to engage in synchronous collaborative learning within a rich environment for mathematical inquiry and knowledge-building interaction.

References

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