ESTABLISHING AND MAINTAINING AUTHENTIC MATHEMATICAL ACTIVITY IN CSCL COMMUNITIES

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Establishing and maintaining knowledge-building communities of practice with Knowledge Forum and other Computer Supported Collaborative Learning (CSCL) software systems in the domain of mathematics has been found to be a rather intractable problem (Scardamalia & Bereiter, 1996).

In this study, the major aim was to investigate whether having students engage in model-eliciting mathematical problems (Doerr & Lesh, in press) with collective discourse mediated by Knowledge Forum would achieve the kind of authentic, sustained, and progressive knowledge-building activity that has been achieved in more content-rich discipline areas such as science, history, and geography.

The twenty-one participants in this study were students from a Grade 6 class at a private urban Canadian school for girls. The model-eliciting problem posed to the students was to devise an alternative model that could be used for ranking nations' performance at Olympic Games which de-emphasizes the mind-set of "gold or nothing". The production and improvement of the alternative models proceeded in five phases: 1) Warm-up Activity, 2) Initial model-eliciting, 3) Sharing of initial models, 4) Revision of Models, and 5) Dissemination and Revision of Models in Knowledge Forum database.

Four important elements of knowledge-building activity which have been noted in mathematical research communities were observed during the course of the study: (1) redefinition of problem, (2) inventive use of mathematical tools, (3) posing and exploration of conjectures, (4) incremental improvement of the mathematical models. Much of the success we had in establishing and maintaining the mathematics knowledge building community in this study can be attributed to the rich context for mathematizing provided by the problem and to the contexts and scaffolds for both intra- and inter-group discourse provided by Knowledge Forum.

REFERENCES

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