

# VMT Year II Plan

## Goals for Year II

To create the powwow service as a sustainable service of the Math Forum to offer students at beginning algebra and geometry levels of math opportunities to engage in online collaborative math problem solving and discussion of math topics.

This goal includes:

- 1) A better understanding of what might motivate kids to work in online collaborative math problem solving groups
- 2) A better understanding of the design of tools students can make use of in order to make their online collaborative problem solving more effective and more satisfying.
- 3) A better understanding of the kinds of problems that could work well in a 1-2 hour synchronous chat setting or other online scenario.

## Summer

### A. Software

- Pete and Gerry continue search of open source chat software begun by Kevin and Rajini
- Propose a simple system with chat, shared whiteboard, summarizing function/key ideas tracker

### B. Pedagogy

- Math Forum staff and Ilene develop a strategy for powwow issues of adoption, motivation, sociability, community-building
- Math Forum staff develop a strategy for using Lisa and Kristina's classrooms to explore preceding issues
- Math Forum staff develop an explicit statement of powwow educational goals and associated problem types
- Design new problems, including problem complexes that involve asynchronous elements
- Design a process of education and induction into the community practice

### C. Research

- Write summaries of the Powwow sessions, emphasizing the quality of mathematics and hypotheses to explain the quality: Math Forum staff and others
- Murat, Ramon, Nan code all powwow logs according to multi-dimensional coding scheme; 2 Math Forum staff assist in providing solutions for problems and coding math dimensions
- Select rich data examples (e.g., one chat log and 1 or 2 video clips) for external collaborators to analyze from different analytic perspectives
- Wes begins to analyze some chat data to suggest hypotheses for analysis using codes

### D. Organization

- Set up email & wiki for external collaborators
- Publish Year II Plan and tasks under 3 areas
- Invite people to collaborate

## ***Fall***

### **A. Software**

- Implement a simple chat system running on a local server for use in Gerry's Winter courses

### **B. Pedagogy**

- Restart the powwow service
- Involve students in Lisa and Kristina's classes
- Develop special problems, problem sequences or mini curricula for powwows
- Implement a process of education and induction into the community practice
- Build in asynchronous elements

### **C. Research**

- Alan & Gerry offer a hands-on training in conversation analysis. Participants will log and transcribe much of the video data (Sharswood and Gerry's classes)
- Murat, Ramon, Nan, Johann begin to use coded data for statistical analysis of comparative hypotheses
- Alan begins conversational analysis of chats and videos
- Wes continues ethnographic analysis
- External collaborator group begins to analyze selected data from different analytic perspectives

## ***Winter***

### **A. Software**

- Conduct online sessions in Gerry's courses using new software
- Students in Gerry's HCI courses design and evaluate functionality and interfaces for extensions to the chat software for powwows, including automated grouping

### **B. Pedagogy**

- Continue powwows
- Design and implement a new iteration

### **C. Research**

- Research shifts to data from new powwows and new classroom experiments

## ***Spring***

### **A. Software**

- Students in Gerry's CSCL seminar group projects explore VMT issues, including software support, collaborative math knowledge building, automated group formation
- Gerry and RAs design software to implement over summer

### **B. Pedagogy**

- Continue powwows
- Design and implement a new iteration
- Consider collaborative services beyond powwows, including asynchronous as well as synchronous components and involving working on math problems with a group of collaborators over a longer period of time.

### **C. Research**

- Research continues on data from new powwows and new classroom experiments

## **End of Year Objectives**

By August 14, 2005 (the end of the NSDL grant):

- The powwow service will be established as an on-going service of the Math Forum

- The powwow service will use a software environment (implemented in summer 2005) to form groups and conduct chats
- The service will support an average of 100 students a week, at least half of whom have participated previously in powwows
- Research based on the powwow service will be the focus of at least 2 PhD dissertation proposals, 3 independent studies, 4 RAs and 3 academic papers

These objectives will form the basis for work in the following 3 years, until August 31, 2008 (the end of the IERI grant)