

Designing Software to Support Collaborative Math Learning

Research Goals

- Provide tools to support small group collaborative learning;
- Automate the procedures of registration, grouping participants, and the facilitation of collaboration sessions;
- Provide reusable resources for future participants' learning.

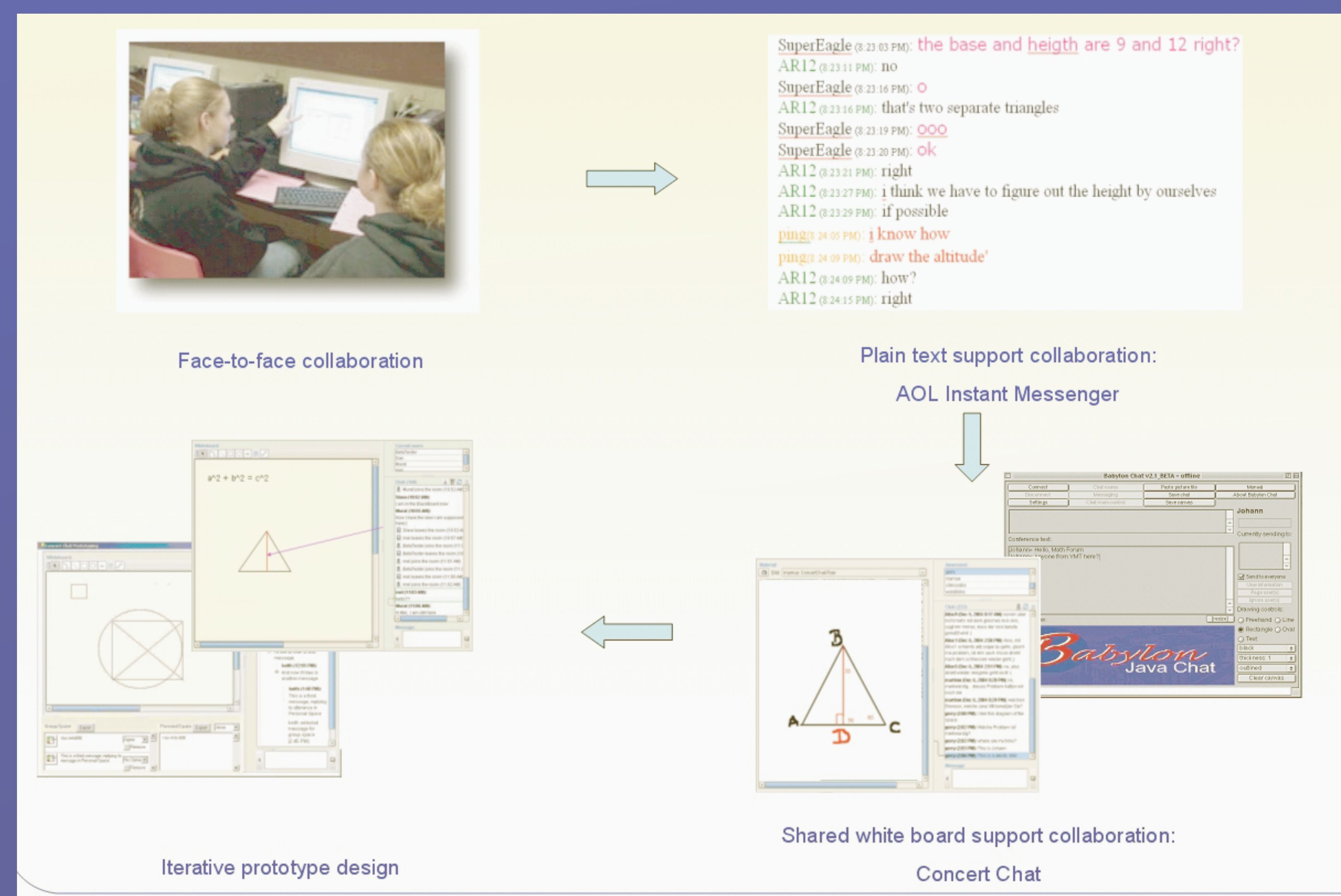
Our Approach

Building an Online Math Community

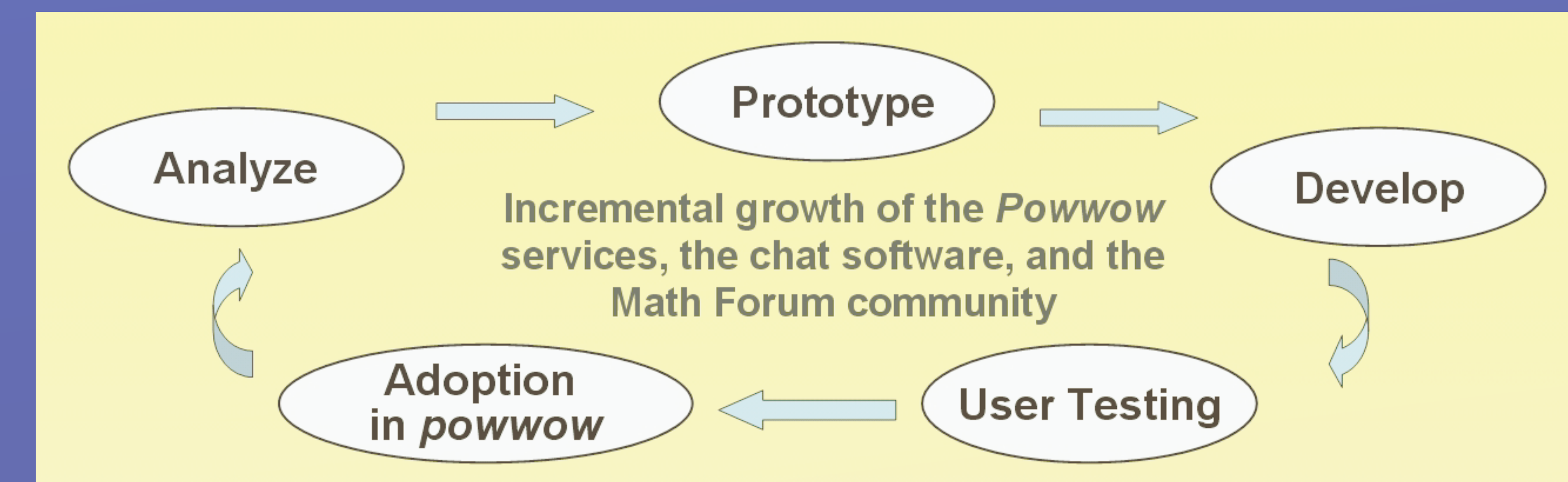
Extending the Math Forum's "Problem of the Week" service, we invited small groups of students to collaborate online solving math problems that require reflection and discussion. Each session lasts about 1-1.5 hours. This is called the powwow service, which aims at bringing geographically distributed students together to build a community where they discuss math problems.

Understanding Community Needs

Small group collaboration was studied within different environments. Software tools with different supporting features were used in these exploratory studies in order to understand the needs and requirements of the community. Recorded sessions were analyzed using *qualitative & quantitative* methods.

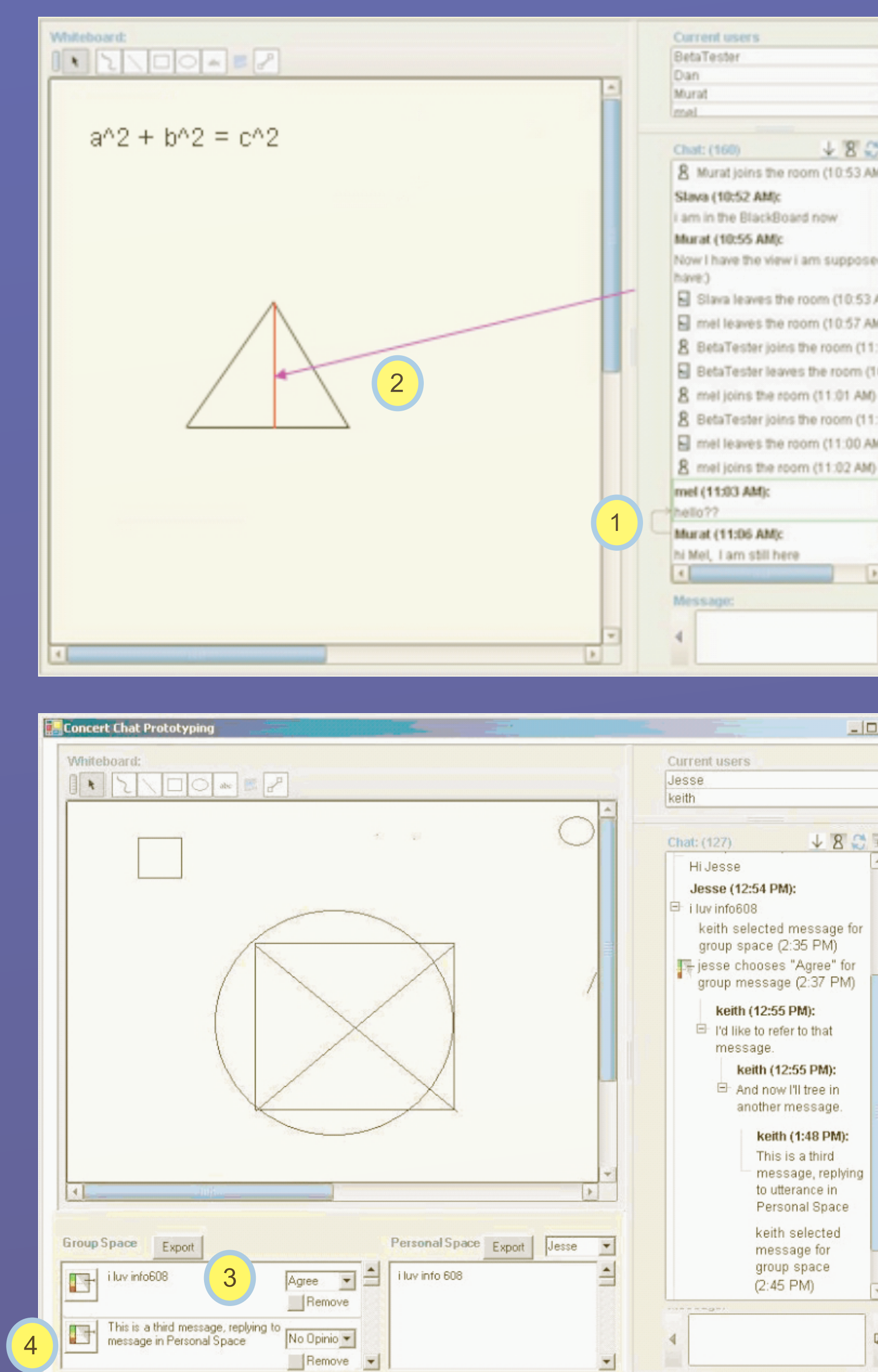


User-centered Design



Possible Future Functions

Our initial data analysis indicates users' possible needs for the following functions in the tool we aim to design:



- 1 A mechanism that enables user to link the previous chat message or graph to the message
- 2 A shared whiteboard with supporting drawing tools
- 3 A shared area for notes to keep things the group consider as worth preserving
- 4 An access control mechanism to shared resources