Interactivity and Collaboration: Building a Digital Library Community at The Math Forum @ Drexel

Eugene Klotz
Wesley Shumar
Steve Weimar
Math Forum in General

• Began with a central community discussion space
• Brought together leading practitioners to learn tools and see where they would head
• Offered free weekend programs for local teachers
• Outreach in local schools
• Developed programs with leading community members. Two examples: Ask Dr. Math and Problems of the Week
• Multiple roles for participants
• Scaffolded participant leaders through staff support
Ask Dr. Math

• Follow the users, Respond to community needs
• Volunteer students from the college and professionals from the discussion groups. - Act locally
• Publish selected interactions - recognition, add value, make community voices visible
• Preparation program to become a doctor and professional community in the “clinic”
• Scaling has always been a challenge
  – Metaphor of “tenuring” volunteer doctors
  – Automated services
Problems of the Week

- New standards in math topics, communication and problem-solving heighten needs for good problems
- Younger students mentored by older students and by outside professionals. Connecting learners to mathematics through communication
- Publish problems, selected answers and commentary: learning from community activity. Recognition. Data
- The importance of revision.
- Mentoring cavalry is even harder to maintain than math doctors. Connecting PoW to other contexts
What we have learned from The Math Forum

- Mathematical conversation and interaction is critical to develop mathematical thinking
- Workshops have been important
  - To build a sustained conversation around mathematics and to develop quality resources there needs to be a combination of f2f and virtual activities
- Participants roles at have evolved in part because of a relationship to The Math Forum
  - People have used their experiences at The Math Forum to develop skills, change their sense of self, get new jobs, etc.
  - Math Forum Projects have allowed for deep collaborations between researchers and teachers leading to further role transformation (positioning)
- The Internet creates some opportunities for network building and personalizing community that can be an asset to learning
Community, Culture and Identity

- Community has grown out of The Math Forum goals to use new technologies to provide good resources, as well as connect people who want to talk and think about math.
- The Math Forum culture has always fostered independence and creativity that has helped many teachers and students who feel stifled by traditional school settings (Cobb and McClain).
- Learning is a process of changing one’s sense of self in relation to others as much as it is acquiring specific knowledge and information.
Math Tools as Social Experiment

• While the original Math Forum grew organically with the Internet, Math Tools is an effort to build by design, beginning with a digital library and incorporating some of the principles learned earlier. Early stage activity.
• Community from the beginning: collection collaborators with wide-ranging roles and participation
• Catalogue
• Discussions: Design roundtable, Research essays, Class projects (Boone, prior community), Syllabus development (Klotz)
• Tool adaptation: Magic Squares, Space Blocks
• Stories
• Revise infrastructure
• Workshop for leading practitioners (results?)
• Facilitation roles
Leveraging Interactivity

• Math Tools seeks to take the lessons learned from The Math Forum’s experience and create a dynamic learning community around tools and resources

• Building a community around tools may be very different than building a community around math interactions such as in Dr. Math

• Next Steps: TPoWs, integration with Math Forum site and NSDL, workshops and program collaborations with other providers
Questions for Discussion

• 1) Why do teachers and students return to the DL? How much and what kind of participant interaction is necessary for a DL to thrive?

• 2) What leads some participants to move from using resources to becoming active contributors to the DL community? What role does the transformation of identities have in this process?

• 3) What role does the community of practice play in online collaborative learning and the sustaining of digital libraries?