

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

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# 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 what to talk and think about math
- The Math Forum culture has always foster 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 ones 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?