





Evolution of a Distance Learning Course for Middle Level Teachers

Heidi Feller
University of Nebraska Lincoln






Introduction

- The Math in the Middle (M^2) Institute is a 25-month graduate program designed for teachers in rural Nebraska in grades 5-8.
 - M^2 is a Math-Science Partnership grant funded by the NSF and is in its third year at the University of Nebraska Lincoln (UNL)
 - Experimentation, Conjecture, Reasoning (ECR) Math 804T is one of the twelve courses offered through M^2
- 



Introduction

- Strategic Objectives were motivated by NAS *Adding it Up* and the NCTM *Principles and Standards*.
 - Aim is to meet mathematical objectives with:
 - ⊙ Solving challenging problems
 - ⊙ Exploring reasoning
 - ⊙ Organizing, recording, and communicatingIn contexts of geometry, number patterns, and probability.
- 



The Participants


● Instructional Team:

- Steve Dunbar (professor)

- Cheryl Olsen (professor)

- David Hartman (high school master teacher)

- Heidi Feller, Kathy Bartley, Aditi Kar, Raegan Higgins (graduate students)

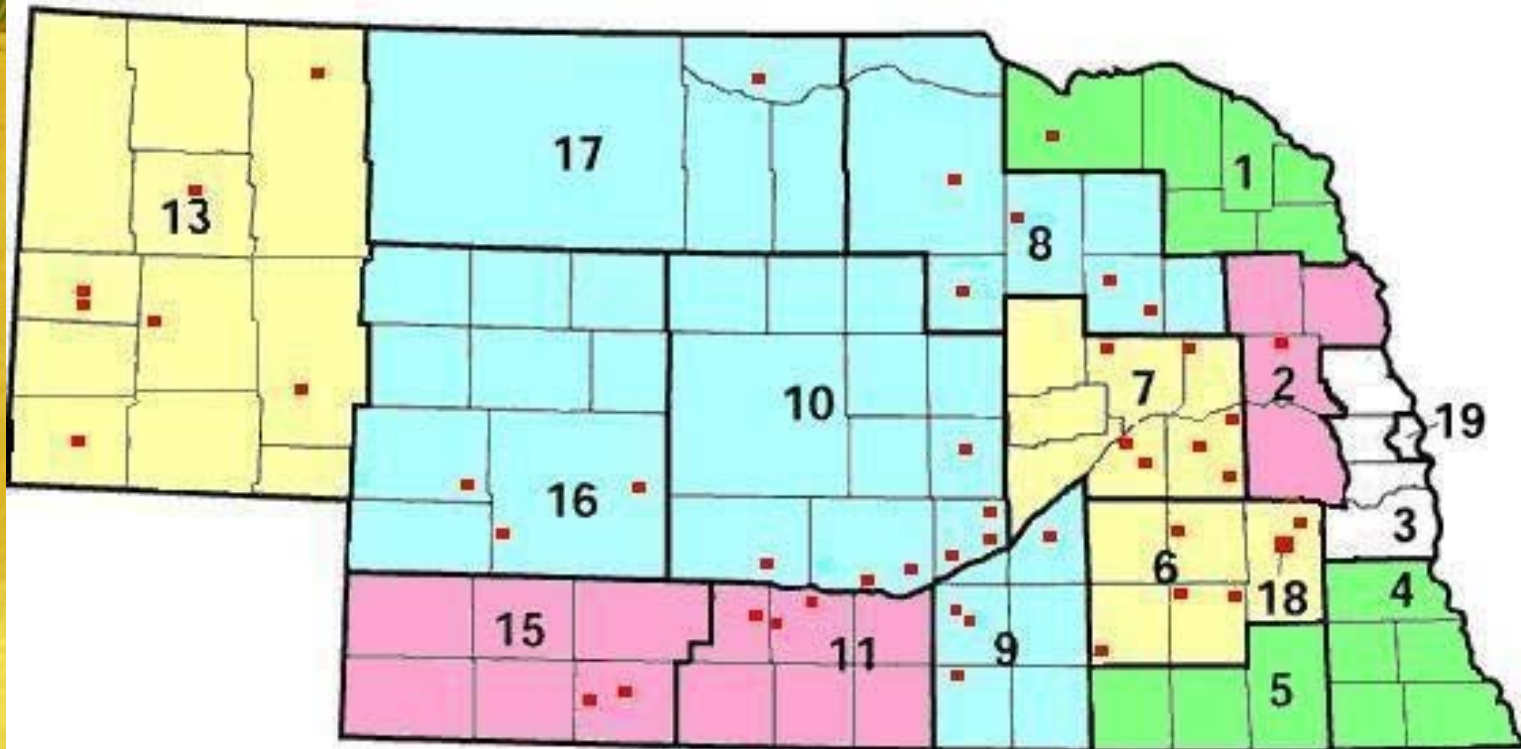


Participants

● Students:

- ⊙ Three “cohorts” of in-service teachers from Nebraska
- ⊙ Each cohort has roughly 30-35 teachers who teach grades 5-12
- ⊙ These are mature learners who are widely scattered in rural areas


Nebraska Educational Service Units



- Yellow regions indicate ESU (Educational Service Unit/Intermediate School District) partners in year 1.
- Blue denotes additional ESU partners joining in year 2.
- Pink signifies ESU partners joining in year 3.
- Green indicates ESU partners joining in year 4.
- By Cohort 4, the partnership has extended to all of rural Nebraska




Distance Education

- We used a hybrid model of distance education:
 - ⊙ Course started with a two-day workshop at UNL, followed by course and student-interaction through Blackboard
 - ⊙ Homework was mailed or faxed
 - ⊙ Learning groups were arranged by geography to encourage group work supported by a faculty or grad student at UNL
- 



Student Support: Blackboard

- Blackboard is a Virtual Learning Environment/Learning Management System that has been purchased by UNL.
 - Blackboard provides a resource to organize group discussion boards and to post course documents
- 

<< Previous Message Next Message >>

Forum: How was the Platonic Solids Treating You?

Times Read: 23

Date: Sat Mar 05 2005 13:56

Author: Mousel, Shawn Alan <smousel@lps.org>

Subject: Further Challenges #3

Remove

Beyond Fibonacci. I have the 15 numbers in the generalized sequence, but I don't understand what is being asked in the second part of the question: "Adapt the methods used in this section to figure out that the quotient of consecutive Fibonacci numbers approaches (the golden ratio) to discover the exact number that their quotient approaches as the numbers get larger"? What are we suppose to be doing or looking for here?

-Shawn

p.s. Are we suppose to be doing something each session with writing up a particular problem or discussing it with a colleague? Just curious.

Reply

<< Previous Message Next Message >>

Thread Detail

Further Challenges #3	Mousel, Shawn Alan	Sat Mar 05 2005 13:56
Re: Further Challenges #3	Clark, Virginia Lea	Sat Mar 05 2005 14:51
Re: Further Challenges #3	Feller, Heidi Anna	Mon Mar 07 2005 11:54
Re: Further Challenges #3	Clark, Virginia Lea	Mon Mar 07 2005 20:48
Re: Further Challenges #3	Clark, Virginia Lea	Tue Mar 08 2005 09:12
Re: Further Challenges #3	Feller, Heidi Anna	Tue Mar 08 2005 11:00
Re: Further Challenges #3	Mousel, Shawn Alan	Tue Mar 08 2005 15:30
Re: Further Challe...	Johnson, Kristin Kay	Tue Mar 08 2005 18:42

OK

- Announcements
- Syllabus
- Course Documents
- Communication
- Discussion Board
- Tools
- Staff Information
- Websites

- Tools**
- Communication
 - Course Tools
 - Course Map
 - Control Panel
 - Refresh
 - Detail View


Student Support: Blackboard


Virginia's Response to Shaun:

"I took it to mean that, like in previous problems, we should find the ratio of a term to the previous term and see what number these ratios approach. For example, find $\frac{F_{n+3}}{F_{n+2}}$. . . I hope that makes sense, I don't know how to type it in any better on here."





Student Support

- Blackboard provides a good backbone for the course to organize discussions, but it does not provide enough human interaction.
 - The teachers in Cohort 1 developed two systems to remedy this situation . . .
- 




Student Support: Polycom

- Polycom is a two-way videoconferencing system used by districts in western Nebraska
 - Teachers in the Panhandle of Nebraska have Polycom Soundstation equipment set up in teleconferencing rooms and use this to meet weekly with an instructor at UNL
- 




Student Support: Polycom

- One ESU 13 teacher said: “Polycom was a great . . . support for our class. First of all, we met every Thursday. Anyone who could be there was there. We discussed problems or questions and then just went through the homework one by one with someone volunteering to tell what they got. Through discussion we were able to understand different approaches and help each other.”
- 




Student Support: Lefler Group

- The “Lefler Group” was a study group, primarily consisting of Lincoln Public School (LPS) teachers who met in person weekly to discuss homework problems.
 - One graduate student met with this group weekly for three hours
- 




Student Support: Lefler Group

- The organizer of the Lefler group said: “. . . one of the strengths of the group was that it was voluntary . . . The best part of the Lefler group was the good time we had working through problems. There was incredible professionalism and good humor.”
- 






Student Support

- For later cohorts, we needed a way to replicate the successful group work developed by Cohort 1
 - Paul Eakin, at the University of Kentucky, introduced us to Centra and PC Notetaker in Fall 2005. These systems provide a way to bring technology and human interaction to the teachers
- 




Student Support: Breeze/Adobe Connect

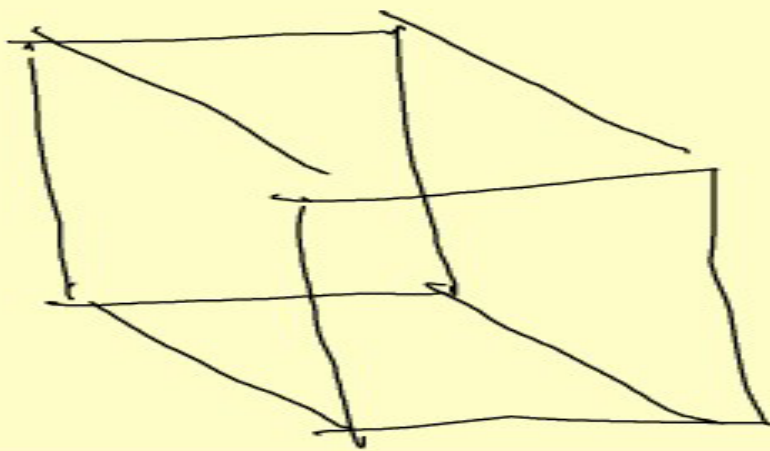
- Breeze is a software designed to create web conferencing and learning modules.
 - UNL purchased a license for Breeze during the 2005-2006 academic year. The software was introduced to Cohort 2 in Spring 2006.
- 




Student Support: PC NoteTaker


- The PC NoteTaker stores handwritten notes/drawings which can be uploaded to a computer.
 - Electronic pen uses ordinary ink refills and writes on paper
- 

This is
a cube:






Challenges with Distance Learning

- Difficult to convey abstract and visual ideas carefully over the internet
 - Breeze is impractical on a dial-up connection and there are frequent disconnects with video/audio correlation
 - Maintaining connection with all students: avoiding isolation
- 




Strengths of Distance Learning

- Students learn to do problem solving using new mathematical concepts
 - By arranging groups regionally and requiring participants to regularly use Breeze, there has been a greater effectiveness of integrating students
 - Technical support staff is attentive and helpful
- 




Important Fact to Remember:

It is too easy to get the medium mixed up with the message of the course. We need to keep problem solving first and foremost





Acknowledgments

- Jim Lewis, Cheryl Olsen, Steve Dunbar,
David Hartman, Kim Quade
 - NSF Grant EHR-0412502
 - GAANN Fellowship
- 



Thank you. Are there any questions?

