STLF Report to CWSEI and Mathematics Department

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Specific activities performed by STLF
1) Professional development
   • Attended weekly STLF meetings (27 Oct, 3 Nov).
   • Attended weekly Reading Group meetings (26 Oct, 2 Nov).
   • Attended CWSEI seminar – Oct 19: Joe Ferrare, Capturing Multiple Dimensions of Instructional Practice
   • Attended Biannual conference of the Southwest Consortium for Innovative Psychology in Education: Building Capacity for STEM Research through Innovations in Psychology and Education. The conference was held in the University of Oklahoma in Norman, OK on Nov 10-11. I can make a report to both Math STLFs and to CWSEI – there was a particularly interesting poster showing what makes faculty change their beliefs about teaching. The presenter will attend AERA (American Educational Research Association) annual conference in Vancouver on April 13-17. Attendance is recommended – and perhaps we can invite her to give a talk to CWSEI group.
   • Attended NOJO meetings with Sarah and Gaitri (Oct 28, Nov 1)

2) Department meetings/activity
   • Along with all Math STLFS, attended the Undergraduate Committee meeting to discuss further fate of Math220 and associated workshops.

3) MATH SEI general meetings/activity
   • Meeting with other Math STLFs (26 Oct, 2 Nov)
   • Conducted Math STLF reading group: Examining the Interactions between Mathematical Content and Pedagogical Form: Notes on the Structure of the Lesson (31 Oct)
   • Helped with orals midterm preparation for Math184 workshops (Nov 3). A note: students preparation via webwork is impressive; everyone came prepared and ready to discuss problems which were traditionally viewed as difficult, or at least cumbersome

4) Course-specific meetings/activities

Math 230 – Finite mathematics course (Math for future elementary school teachers)
   • Met with Steph van Willigenburg (21 oct, 28 oct, 7nov). Meetings were dedicated to further recording of weekly learning goals for the course, as well as pedagogical notes to go with the goals.
   • Observed Math230 class (Nov 1) with Steph teaching, to take note of strategies and teaching style, since they are very successful with the given group of students.
• Met with Steph to discuss and modify diagnostic (post) to be given to students on November 17th.
• Met with Dr Cynthia Nicol of the UBC Education Department. Dr Nicol teaches mathematics methods class to future elementary teachers – in other words, her class is the next mathematical stop for the students in Math230/Math335 before they face children in a classroom. The meeting was very productive, future meetings will be held, and collaboration between departments re-established on the subject of Math230/335. Dr Nicol has materials from collaborations with Dr Klaus Hoechsmann; she pointed out a PhD thesis work by one of her students who interviewed issues and interviewed students in the initial Math335 class. Dr Nicol will help establish math requirements that students need to hold before they arrive into her math methods class – that will help determine the necessary curriculum for Math335 class.
• I have started a UBC Math for Elementary Teachers webpage, where one can find all the resources I have managed to gather this far – articles by mathematicians and educators, past UBC Math230/335 web pages, resources from other places, etc. The page is a work in progress at the moment: http://www.math.ubc.ca/~yurasoe/Math230_335.html

Math 220 – Introduction to proof
• Writing of problem sets and workshop instruction are continuing.
• Met informally with two math faculty members to gather their ideas on the proofs instruction, course improvement, potential alternative structure for workshops and problem-solving sessions. Note: faculty members who are not directly involved with the Initiative are not aware that we are building workshops for Math220. The news of the workshops was actually very welcome.
• Students in Math220 often display weak pre-calculus preparation (and they are not the only ones, of course). I have ordered some inexpensive algebra and calculus books to review – they have favourable review in literature and we could use them in the future to send students who wish to review algebra. We really should have an in-house and high-level review resource where we can direct our students if they need pre-calculus review and preparation.

Current Project Status (material prepared STLF and/or other members of MATH SEI group)
Math 220 – Introduction to proof
Learning Goals: No changes to the existing document have been made.
Assessments: no new assessments were created. Two questions on the diagnostic test need to be validated.
New Methods/Materials: Workshops sets and solutions through workshop 9 are created and posted on the website.

Math 230 – Finite Mathematics
Learning Goals: Learning goals for weeks 5,6,7 were recorded and made available to
students before Midterm 2. New set of learning goals was started – on the topic of geometry.

**Assessments:** Format and wording of some of the questions in the diagnostic was improved. New questions were added to gather information relevant to the end of course period.

**New Methods/Materials:** per Steph’s request, bought barbeque sticks, play dough and modeling clay - so that students build Platonic solids in class. A note for the future: play dough does not hold barbeque sticks very well… Recommended to switch to plasticine of our childhood.

**Plan for immediate future work**

**Math 220 – Introduction to Proof**

1. Give post diagnostic in both sections of Math220; analyse data and compare to the pre diagnostic; correlate with course grades when available
2. Continue writing problem sets
3. Build an end-of-term survey to poll students on workshops.
4. Give an end-of-term survey for workshops, to gather students opinions on the content, as well as incentives for attendance.

**Math 230 – Finite Mathematics**

1. Continue writing learning goals.
2. Write up over-arching learning goals at the end of course.
3. Give repeated diagnostic at the end of course. Afterwards discuss solutions of particularly significant problems with students
4. Analyse post diagnostic data, compare with pre diagnostic data
5. Get volunteers in Math230 class to come to a discussion panel/interview at the start of winter semester, to discuss their opinion as to what they would want to see in the class and what they would find helpful.
6. Set up and hold a meeting with Dr Cynthia Nicol to discuss results of diagnostic test
7. Meet with Dr John MacDonald to discuss teaching of Math335 next semester.