The Math ~~Exam~~ Educational Resources Wiki
UBC Lunch Series for Teaching and Learning

Carmen Bruni
On behalf of Christina Koch, Bernhard Konrad, Iain Moyles
and the entire MER wiki team

University of British Columbia

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Outline

- Welcome and brief history.
- Recent updates.
- Current ideas.
- Current issues.
- Discussion: future directions of the MER wiki.

Items to ponder during the short demos

- Is this work sustainable? How can we make it so?
- How one can use this resource in class/for instructors?
- Where do we, as a department, want to go with this resource?
- How do we best align this resource with our teaching goals?

Brief history of the MER wiki

- Project started 20 Feb 2012. Now, it has become this!
- Goal: improve quality of content, system of content delivery.
- Wiki format allows flat hirarchy, is easy for new contributors, great to work collaboratively and is intuitive to use.

How far did we get in two years?

- 39 complete exams, 954 fully written solutions with hints (and counting!) by about 35 contributors.

Student feedback

Do students use it? Oh yes, they do!

- "I just wanted to express my sincere gratitude for the resources you have provided us! This first year course has certainly been a challenge for many of us, and your help really means a lot to us. Indeed, creating this resource must be a crystal of hard work, effort and time, that your team have contributed, for the sake of others."
- " I used the tagging system and found it to be very helpful as I could find similar types of questions that I had a difficult time with quickly (sort of like using an index in a textbook)."
- "The tagging system was GREAT! It's funny because I remember seeing those tags for some topics but not the one I was looking for, so I was frustrated. Then the next day it was there! That was cool."

What happened this past term?

- Additional insight on usage and exam design from the rating bar. We can now start to rate by difficulty.
- Improved the tagging system and connect it to the course syllabus. Show syllabus on exam course page.
- Display and remix wiki content on wordpress and connect.
- Grant applications to Teaching and Learning Enhancement Fund and Innovative Dissemination of Research Award.

Research on worked-examples

Question: Is this useful for students or harmful?

- For the sake of this talk, let's assume that our goal is to aid students on achieving a high score on their examinations.
- Research suggests that
  1. Students who see worked examples and conventional problems versus only seeing conventional problems do better on test questions containing similar problems (Sweller-Cooper '85), (Cooper-Sweller '87), (Paas-Van Merriënboer '94).
  2. Students also spend less time on worked examples than on conventional problems (S-C '85), (C-S '87), (P-V M '94).

Research on worked-examples

3. Students who are in the worked example group also can perform better and spend less time on transfer problems (that is, examples not identical to the practice ones) provided the variance in difficulty is not too large (C-S '87), (P-V M '94).
4. Strong students are not effected by the type of practice so long as they spend "enough time" on task. Weak students however perform much better on tests provided they have spent enough time on worked examples (C-S '87).

Research on worked-examples

5. When normalized for time, students perform substantially better and are faster on transfer problems than a conventional problem group (C-S '87).
6. Students seeing worked examples on problems of large variability will in general perform better on transfer tests (P-V M '94).

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Summary: Students need to develop schemata for organizing problems which can be faciliated by worked examples.

Where do we want to take this?

Tie to our teaching goals

- Simply continue to post more exam solutions?
- Add non-exam questions and "fill in the details" solutions?
- Integrate into courses: Some percentage of grade to invite students to contribute. For example, explain a concept and post on tag pages.
- Wiki's vision: Make this the best resource possible for undergraduate students at UBC.

Be part of the math department vision

- How the wiki can make an instructor's life easier?
- How can we make it a more year-round resource?
- How can we increase sustainability?

Ways to Get Involved

- Write hints, explanations, solutions.
- Send us exam solutions.
- If you're teaching, advertise to your students or even tie to your course.
- Code away on our templates in MediaWiki.
- Give feedback! What do you like or dislike? What should be added or removed?
- Send us your ideas! Email us at mer-wiki@math.ubc.ca

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Thank you!