Creative, peer-reviewed projects in very large classes

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Context
- Project funding: Large TFL
- Course: EOSC114, Natural Disasters
- Students: 1500-2000 in B, F2F and DE sections / year
- Demographics: 1st - 4th year, all degrees
- Instructors change for each of 6 modules
- Admin. instructor provides ‘stability’

This project’s objectives
Enable students from all disciplines to...
- ... practice reading & applying scientific thinking
- ... practice peer review
- ... assess thinking skills, attitudes & knowledge
- ... have some elements of choice
- ... contribute creatively to a class-wide resource.

Course structure

How are ‘creative projects’ situated within the course?

Miniprojects for students

Teaching objectives
1. Enhance student motivation & personal interest.
2. Expose students to experiences & interests of colleagues.
3. Explore strategies for creative learning in large classes.
4. Explore peer review options for very large classes.

Learning goals for projects
1. Create/share personally relevant peer reviewed content.
2. Increase google mapping & research skills.
3. Relate course-wide framework concepts to personally interesting events.

Achievements to date
1. Maps & info from hundreds of student submission
2. Predict results; follow up by revisiting maps
3. Online database of hazards for future student entries
4. Pilot: submit / characterize sources, images, qns, etc.
5. Pilot: automated assessment strategies
6. Pilot: Self-assessment emulating peer assessment
7. Pilot: Synthetic versions of peer review (two tries)

After two terms: Fall 2017 and Winter 2018

Students’ chosen events include:
- Willing to make public: F2F = 83%; DE = 77%
- Who experience it →
- Type of event →
- Course framework concept of interest →
- Information source & type →
- Question to authors & type →
- Image & caption & type →
- Written description: 60-100 words

Time on task:
- Each map: 40 ± 18 mins.
- Each review: 55 ± 30 mins.
- Reading homework: F2F = 2.3 ± 1.4 hrs; DE = 3.3 ± 2.4 hrs

Successes: lessons learned so far
- Student feedback confirms miniproject is motivational.
- Prediction & map review: students like using results.
- Students appreciate choice & freedom to pursue interests.
- Open-ended qns are well-answered even if not graded.
- Worksheet → LMS submission enables assessment + maps.
- Maps via fusion table: takes TA ~1/2 hr using a template.

Challenges: lessons learned so far
- Piloting in Connect for deployment in Canvas is costly.
- Students don’t visit results until ‘required’.
- Maintenance & improvement of homework & active learning requires instructor buy-in & commitment. But...
- ... course structure inhibits agile course evolution.
(Structure: 6 instructors, F2F = DE, demographics, etc.)

Next steps
See “Third version plan”, to the left.
- Conversion to Canvas:
  - Trials in 2018s, fully implement 2018W1.
- Clarify peer review decision making: Employ ComPair. Ask:
  - “Which is better - A or B?
  - Incorporate 4-5 criteria, 2 of which are “open-ended”.
- Require feedback to both entry.
- Scaffold this skill with models and a training step.
- Compare 4-6 anonymous pairs.
- Increase graded revisiting of maps.
- Balance repetition and variety of tasks.
- Re-introduce an augmented final ‘favorite’ entry.
- Analyze student results by demographics.

Conclusions to date:
- Students like making to & revisiting maps.
- Worksheets + LMS + fusion table enables ...
  - efficient delivery, assessment & display.
- Peer review: partial success; needs adjusting.
  - “Cost” to instructor & TA is manageable.
- Student perceptions: overwhelmingly positive

Miniproject sequence: first attempt, second, and planned for Fall 20218

First pilot, 2017W1
1. Map 1: Any event (eg. given)
2. Map 2: Volcano event
3. Map 4: Landslide event
4. Map 5: Storm event
5. Map 7: Favorite event + Pilot peer eval with self-assessment + survey

Second pilot, 2017W2
1. Map 1: Any event
2. Map 2: EQ event
3. Map 3: Volcanic event
4. Map 4: Landslide event
5. Map 5: Storm event
6. Map 6: No volcanocasual event
7. Map 7: Favorite event + Pilot peer eval with self-assessment + survey

Third version plan, 2018W1
1. Map 1 (any) + ComPair training (G)
2. Map 2 (eq) + map 1 qns (G)
3. Review map 2 + followup
4. Map 3 (volcano) + map 2 qns (G)
5. Review map 3 + followup
6. Map 4 (at/wa) + map 3 qns (G)
7. Map 5 = augment a favorite. (*G) = graded

Miniproject result - part 1: whole map, 459 entries

Peer review strategy – pilot
- Worked well:
  - Specific questions about “correctness” of entries.
  - Predicting results & subsequent follow-up.
- Questions upon review of whole maps.
  - Worked but needs improvement.
  - Peer review: choose best of two
  - Did not work well.
  - Peer review:Rubric for comparing two entries.
- Students perception of clarity & difficulty.
  - Split 50/50 on easy/difficult vs clear/confusing

Typical student’s entry

“Context” & “Successes” in a project (387 submissions)

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