Teaching Geoscience Online

Student Motivation and Engagement in Online Courses
by Selby Cull, Washington University in St. Louis
Don Reed, Dept. of Geology, San Jose State University
Karin Kirk, Science Education Resource Center
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The challenge of keeping our students engaged and motivated is common across grade levels, subject matter, and all types of institutions and courses. Online courses, however, present a special concern. With students and faculty in contact only via the internet several new challenges arise.

• Without face-to-face contact, faculty are not able to pick up nonverbal cues from students that can indicate they are disengaged, frustrated or unenthusiastic.
• Faculty also cannot share their emotions easily and may find it harder to express enthusiasm, encouragement or concern.
• The anonymous feeling of the online environment can make it easier for students to withdraw, participate minimally, or completely disappear from the course.
• Students may enroll in online courses because they feel they will be easier and require less of their time. So before the course even begins, these students may be prone to disengagement.

On the other hand, there are several advantages to the online environment that make it easier to engage students.

• The self-paced nature of online courses allows students to fit the work time into their schedule. Those who prefer to login to the course at midnight are free to do so!
• Extrinsically motivated students can be engaged with quizzes and interactive features that offer instant feedback
• The web offers tremendous possibilities for flexibility, interactivity and creativity. It is possible to create many types of engaging experiences.

Background: The Nature of Online Learners

Online learners are a varied group, but there are commonalities that can assist instructors in developing effective strategies in course design and pedagogical approach. In particular, these students desire a flexible schedule to achieve their educational goals through self-paced learning while juggling the other demands on their time.

• The requirements of self-paced learning – self discipline, effective time management, writing skills, self-directed work, organization and prioritization of effort, and confidence in presenting ideas openly and recognizing gaps in understanding through self assessment and reflection.
• Type of students we serve - online students range from fast-tracked, high achievers to students currently on academic probation who may take courses through continuing education. The average age of students is generally older and there is higher percentage of female students than in the offering institution as a whole.
• Study habits - many online students have multiple demands on their time, causing odd, sometimes irregular, hours online. Multiple and sometimes competing obligations are squeezed into their daily schedule (other courses, accelerated graduation schedule, work,
travel and family), consequently online coursework may not always be their top priority, causing assignments to be pushed aside to last minute, especially in general education courses.

### Pedagogic Design for Engagement

- Do not limit your course web pages to blocks of dense text and sparse images. There are many ways to create an engaging design for your course pages. Rely on use of imagery, video, audio, music and interactive features. If possible, work with an instructional designer to create these features.
- Use video of yourself introducing course content, as in this video of [Course Information](#).
- Use video of exciting topics in your course, such as this video of the [La Conchita Landslide](#).
- Use real-time, web-based data such as [USGS streamflow network](#), NOAA offshore buoy measurements and drifter buoys, [recent earthquakes](#) or [climate data](#).
- Have students take on the role of a geoscientist in virtual research activities, patterned after major research initiatives in the geosciences, real-time data or online databases. Example activity - [Tracking Drifter Buoys](#).
- Case studies can involve role-playing, the use of maps and data sets and opportunities to synthesize various materials around a central topic (see a collection of 38 [role playing scenarios](#) for the classroom).
- Applications of course concepts to your own home town. (such as [Environmental Geology of the Area where you Live](#)).
- Ask for students' input on class topics and assignments (Dennis et al. 2007).
- Use of "gateway" assignments, which students must complete before proceeding in the course can be effective in some situations.
- Adopt instructional methods that emphasize "guiding students toward their own discoveries of facts and relationships" (Alutu 2006) (Such as, "While you're reading this assignment, think about how it relates to ______.")
- Use discussion boards to create a sense of community and promote active engagement with the course topics ([Using Discussions in an Environmental Geology Course](#)).
- Create course topics and readings that are current. Incorporate recent news events and magazine articles into existing course topics (Dennis et al. 2007).
- Assign roles in discussion assignments especially for provocative discussions based on current events, case studies or policy issues.
- [Show example](#).
- Set up peer groups - extrinsically motivated students are motivated by achievement in relation to their peers; intrinsically motivated students are able to interact with peer groups to gain more insight – both types of students benefit from working in peer groups. (Moore 2006)
- [Show suggestions for using peer groups](#).
- Conscious development of metacognition Dennis et al. (2007) suggest posting a primer on metacognition on a discussion thread, and to return to the concept throughout the course. (Find out more about [The Role of Metacognition in Teaching Geoscience](#)).
- If possible, hold a face-to-face meeting for a critical activity such as a field trip.
Instructor Behavior to Promote Engagement

Setting Expectations

- Create explicit course and activity goals (Ames 1992) - students feel more motivated to put effort into a course that they deem worthwhile. If the course goals are explicitly laid out, students can more accurately judge if they are worthwhile.
  
  ▶ Show tips
- Clearly communicate work/learning expectations before class begins. Using video is an effective way to do this.
- Provide study strategy tips from successful students in previous classes.
- Create a detailed syllabus with assignment information, format of class, course and assignment schedule and advice for completing work. If possible, link assignments and policies directly from the syllabus so students don't have to search for this information.
- Keep the course website updated with notifications of units that are opening, closing or changing.
- Create a short video to initiate each new activity. this provides a personalizes introduction to the work.
- Use a syllabus survey/course policies quiz at beginning of semester, which can be a gateway to assignments (see an example Syllabus Quiz)
- Set up a consistent timetable for work each week, so that deadlines are predictable.

Communication

Related Links

Self-Efficacy - Helping Students Believe in Themselves

- Log in often, respond quickly, and convey genuine enthusiasm (Crumpacker 2001)
- Because so much communication is done via the typed word, choose your wording to deliberately reach out to students
  
  ▶ Show example
- Start a weekly thread on "Tips & Tricks", where students can post suggestions for their classmates.
- Allow students to develop self-efficacy. Recognize when a student has done a particularly good job on a task, or has dramatically improved on a skill. (Kerssen-Griep 2003) "Ensure an early success for each student; praise and document it." (Dennis et al. 2007)
- There are many ways to stay in touch with your students. If you are facile with multiple modes of communication, use whichever one students prefer. Aim for Frequent and regular contact, each week, especially if student is falling behind.
- Try video Skype or video iChat for one-one discussion and interaction
- Set up a Facebook page for your course. This can be a separate Facebook account from your personal page, allowing you to keep your personal page independent from your professional one.
- Encourage personal interactions (Hutchins 2003, Arbaugh 2001)
  
  ▶ Show examples
Assessment

- Carrot (intellectual stimulation) and stick (consistent deadline with clear expectations and consequences with a well-defined late policy for all assignments)
  - Show example late policy
- Completion of work acknowledgment to instructor for every assignment
- Provide timely, specific and personalized assessments for each assignment.
- Instead of written feedback for each assignment, try using video/audio tracks for giving feedback for assignments. Jing is a simple, free program that can be used to create a narrated screen capture. Using a screen capture video you can "point" to various parts of an assignment and record verbal feedback.

Helpful Web Resources

**How to Motivate Online Students** This page offers straightforward tips to keep your online students engaged, such as helping a shy student get involved in an online discussion, or to using creative assignments, and offering additional encouragement via email.

**How to Motivate Your Students** from eLearn Magazine.
This article presents several suggestions for variety within assignments, ways to reach out to students and methods to engage students in roles that appeal to them.

**Motivating Students to Participate in Online Discussions** (pdf document) This handout from the University of Calgary offers guidelines about setting expectations, giving the students responsibility, and keeping the discussion content relevant with the rest of the course. (has links to other resources)

References


Dennis et al. (2007) The little engine that could - How to start the motor? Motivating the online student. Insight2: [http://insightjournal.net/?page_id=146](http://insightjournal.net/?page_id=146)


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