The Internet As a Device for Teaching and Learning

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Abstract

The Fermilab LInC program is designed to create a network of educational leaders who effectively use technology to support engaged learning. Throughout LInC's two-year history as a course offered online (a shift from the program's traditional, face-to-face format), the LInC facilitators have developed better methods for encouraging engaged learning through online staff development. This year, research was done to gain a more complete—but still rudimentary—understanding of the issues associated with using the Internet as the primary means for communication and a method for accessing class materials. The research dealt specifically with strategies for conducting class sessions using IRC (Internet Relay Chat).

Background

LInC is the Fermilab Institute Integrating Internet, Instruction, and Curriculum, a course devoted to helping educators learn how to best use technology to support engaged learning. The LInC course itself incorporates techniques in engaged learning, and every course participant must develop a project using these techniques and methods for effectively using technology.

Work in Technology

In addition to the education research performed in this project, I have worked on a number of technical projects:

- Application for Winter 1999 Course (HTML and Perl code)
- Background research on online classes

- Completion of dirWalkSavePerms application to save sharing permissions on the web server

- Updates of various CGI scripts in Perl and FDML

- Bug fixes to dirWalkSavePerms application for MacOS 8.x functionality

Work in Education

The LInC online course relies on chat sessions over the Internet in the place of face-to-face class sessions. Each chat is logged and archived on the course web server, and over the course of LInC's two years online a prodigious body of chats has accumulated. We examined a sampling of those chats and, using observations about those chats and 'unwritten rules' developed by facilitators past, created a set of suggestions for teachers of the LInC course (and other online classes).

- Clearly define the goals for a class session at the beginning of the chat, and chose a recorder immediately if one is necessary. This has often helped to keep students on task. Also, it must be made explicitly clear who the moderator is, what the product of the chat should be, and outline expectations of the students at the start of the class session. "Tonight we are going to discuss engaged learning," is more vague and less directive than "Tonight we're going to talk about engaged learning. We're going to try to come up with a list of things educators should consider when developing an engaged learning curriculum."

- Keep in mind concepts of engaged learning when moderating a chat; the moderator should be facilitating discussion, not lecturing. For instance, if the course is about web design, asking "What are your pet peeves about web pages you've seen?" and helping to guide the ensuing discussion engages students more than merely telling them how to design a site.

- Use anecdotes and analogies frequently. The question "One of my students told me a project was fun. When I asked why she said that it was because I hadn't told her what to learn and do. What do you think about this?" is a *much* better question than "How do you feel the student-centric nature of engaged learning affects the student's enjoyment of the project?"

- Be very mindful of the effects of what you say. Often when conversation slows so that you may answer questions in turn, it may be helpful to say, "Please, if you have comments continue to answer each other. Don't wait for me." On the other hand, if a conversation is going well and this *is* happening (that is, the students are engaged in discussion and are answering concerns among themselves), making such a comment will likely be disruptive. When teaching an online class, one must move away from the view of teacher as one who 'directs' to one of teacher as 'guide'. Keep conversation moving, but be careful not to make an excessive number of directional comments.

- Make sure your students talk to the group rather than to you. That is, do not make comments of assent or dissent for each student's comment; rather, let the group criticize or expand on each person's ideas. This may be necessary at the beginning of a class session, but the hope is that this becomes unnecessary (or even disruptive) once the discussion is going.

- Make sure students are clear about the topic of the class session and in which chat room the session will take place well advance of the chat. LInC uses a chat schedule, posted on the Web, to inform students of such information.

- Send relevant information about chats to your students ahead of time through e-mail; discussions can begin more quickly and continue with fewer problems if students know the topic of the discussion, what is expected of them, etc., in advance and can begin thinking about the issues before the class. Here is an example of such an e-mail:

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This week's chat will have 2 sessions. In the first session
your mission is to discuss your (or your student's) best
learning experiences with each other and together come up
with a list of some characteristics that your best experiences
have in common. At the beginning of the chat, pick a recorder
who will post your channel's list to:

    Bulletin Board Topic: Reflections
    Conversation: Best Learning Experiences

after Session I of the chat. While you are chatting, consider
the following questions about your best learning experiences:
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1) What was the student's role?
2) What was the teacher's role?
3) What was the student task/product?
4) How were the students assessed?
5) How were the students grouped?
6) Was technology used? If so, how?

Your facilitator will let you know when it is time to start
Session II. In this session, you will have time to communicate
/ collaborate with your colleagues about your ed / tech project
and get info about how your issue is handled in their districts.
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- Make your students aware that despite the fact that they're participating in the class from home and are not meeting face-to-face, the class session *is still a class.* Spend time discussing the change from face-to-face sessions to chat sessions with your students.

- If you plan to use a great deal of Web resources, develop a page of links to those resources so that students may visit the page during a class session and click links, rather than you giving them URLs to type in.

- During initial class sessions, make sure students can reach you by telephone in the event of technological-failure or difficulties in using the chat software.

- Make sure your students are able to bring up both a chat window and a Web browser side-by-side. In the LInC course, facilitators have been frustrated by students leaving the class session in order to open a web browser—this is analogous to a student leaving a classroom in order to open her book.

- Make sure all students are engaged. Just because five of your students are deeply engaged in conversation doesn't mean asking a silent student what he thinks about the matters being discussed would be disruptive.

- If facilitators will be teaching multiple class sessions simultaneously, make sure there is a chat room in which they may all converse about how sessions are going.

- Come to class prepared. A lesson plan with discussion questions and resources are invaluable.

- Be careful to provide positive feedback before criticism, and be supportive and constructive. After giving that criticism, ask a question so that the student can reflect on your observations. Consider the following from a chat about web design:

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  Ben: 2nd page is easier to follow even though there is more info.
  Tim: Yes, the page is easier to read. Good observation. However, if
       you look more closely you'll find that the content is exactly
       the same. What does this tell us about design?
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- Explain to students that they must be careful about how they say things. On the Internet, no one can detect a change in tone of voice or a smirk—tell them to be tactful and use emoticons.

- Have participants try to develop some product during discussions and have a student record these and post them on the Web (or somewhere else accessible to all students). These may include a list of concepts, a summary of the discussion, some method for applying the discussion to students' projects, or a reflection on the discussion. Some examples of products from previous LInC sessions are:

  – After discussing preliminary project proposals, students write a revised proposal using suggestions from other students and the facilitator.

  – Students learning HTML look at a web site's source code and write an explanation of what each HTML tag does.

  – Students must develop a list of good tips for designing a web site following a discussion about web design.