

CoWeb Guide for Teachers

Computer Modelling for Curriculum Integration Project*

April, 2001

Using the CoWeb does not guarantee a positive collaborative learning experience. Sometimes very little discussion occurs. Sometimes students do not visit the site at all. In the three years of use of the CoWeb, we have learned some heuristics for what makes for a successful CoWeb, where students and teachers feel that the space is dynamic and valuable. Here are some of our tips and suggestions.

1 The CoWeb is Not Just a Website

If you just use the CoWeb as a class website (e.g., just post the syllabus and office hours there), you're missing what makes it interesting and potentially valuable for learning. It *is* an easy-to-use website, but it's also a website where you can let the whole class contribute to make something interesting and interactive. Here are some rules-of-thumb to avoid making it just a website.

Don't lock all the pages. There's a temptation to lock every page, so that no one can "mess with" anything. Of course, you want to lock pages that containing critical information that the students need to know comes from the the teacher. But CoWebs that get students involved have less than 25% of the pages locked. Create *explicitly* unlocked pages where students are invited to create new pages — not just "comment" or "question" pages where students are invited to post notes. Let students create some of the structure and topics for discussion.

*Tell the students that you **want** them to contribute.* Chrissy Hess, an ITD MS student, did her thesis on the use of the CoWeb in LCC. One of the things that she found was that students mostly only posted on pages that said "Post here" or "Add comments/questions here." By putting a "+" sign on a line by itself (when editing the page), you create an "Add to this page" box to *enable* posting — but you also have to tell students that you *want* them to post there. Without such a comment, Chrissy found that students tended not to post anything on the page.

Structure the CoWeb expecting collaboration. More than once, a teacher has announced the CoWeb's availability and just posts on the front page "Post here," then left it alone. In some cases, students did start using the CoWeb, but the

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questions about assignments, problem sets, due dates, exams, and interesting, relevant URLs all got jumbled up on the same page. Creating some structure at the top of the CoWeb not only makes it easier for students to figure out *where* they make different kinds of postings, but it also encourages use.

Structure the curriculum to make it worthwhile to collaborate. There are some classes where the CoWeb just never takes off. Term after term, students just leave it alone, or if required, post only the minimum amount necessary. From interviews and surveys, we realized that the students were only acting logically. In general, the classes where the students were not using the CoWeb at all were graded on a curve, were perceived as being highly competitive, and tended to have only a single correct answer for a given homework assignment. Under these conditions, it's only rational to save any advantage one has for oneself! If you want students to collaborate¹, you must make it advantageous for them to do so. For example, classes where the CoWeb has been most popular (e.g., Architecture, Composition, Object-oriented design in Computer Science) have focused on design problems. Design problems tend to have multiple correct solutions, and sharing ideas and partial solutions helps everyone.

Establish a routine to keep the students coming back. The Architecture CoWebs (2cool and TresCool on <http://herring.cc.gatech.edu>) had two weekly required postings. Students reported going to the site with a specific purpose in mind but often doing/looking at other things while they were there. Alternatively, a short, intense, well-defined time period worked well for an online review. The worst combination seems to be open-ended and infrequent use — if you visit a few times and there's nothing happening, why would you keep checking back? It's too much trouble.

2 Structure of a Class CoWeb

The least successful CoWebs are the ones where the teacher asks a CoWeb to be created for her class, announces it to the students on the first day of class, and never touches it. Part of the problem in this model is the lack of participation of the teacher, which is discussed later in this section. But part of the problem, too, is the lack of appropriate structure in the CoWeb.

We have found that students are surprisingly reticent to edit or create CoWeb pages, at least at the beginning of the class. Even in a successful use, there is rarely much activity in the first weeks of the class. Students must be explicitly invited to participate in the CoWeb.

An effective way of making the invitation is by creating a collection of pages on the Front Page of the CoWeb which invite different kinds of activity. Each of the discussion pages contains some text explaining what is appropriate on the given page. Some example pages include:

- *Who's Who* where students introduce themselves. Encourage them to do

¹And don't forget, that it's now a requirement of ABET accreditation that engineering curricula involve collaboration

something meaningful there, like why they're taking the class, or answering a relevant question ("What got you interested in Mechanical Engineering?")

- *Cases* where students can post cases (perhaps for extra credit).
- *Comments* where comments are solicited. (Often, the *Comments* page contains references to several other pages where more specific comments are solicited, e.g., on *Homework Project #1*, or on the topic of the first paper.)
- *Tips and Resources* where students leave pointers to useful information on the Web
- *Sandbox*, an "Experiment Area" where students were encouraged to explore use of the CoWeb.

Having a half dozen places where focused activity is encouraged tends to be more successful than a nearly blank *Front Page* that invites any kind of activity. While in some classes students may be motivated enough to make a blank *Front Page* work, in most cases, we have found that more specific invitation is valuable.

3 Structuring Class Activities

Once the CoWeb is set up, students need a reason to go visit the site, and to recognize its usefulness. We have found that the most successful CoWebs tend to have two kinds of activities early on in the class.

- First, there is a required or strongly encouraged simple activity for everyone to learn the mechanics of creating pages. In some classes, students were explicitly requested to create a CoWeb page for themselves on the Who's Who page. In other classes, the students were asked to create a page for an initial homework essay or for their class journal entries.
- Early in the class, there is some organized activity that involved students editing CoWeb pages and engaging in a discussion. The goal is to have an activity that is valuable to engage in, but is not required. In one class, it was a discussion of a report available on a Web page. In another, it was a midterm examination review where students were invited to post answers or comment on others' answers to a sample exam. This second activity served to bootstrap discussion and to model the kind of activity which could be organized in the CoWeb.

A technical issue in creating CoWeb activities is to not set up a bottleneck for students. If all students have to post to a single CoWeb page as part of a required assignment, then that page becomes a bottleneck. When the majority of students attempt to complete the assignment near the deadline, students are racing for a scarce resource. Frustrated students tend not to participate freely in open authoring activities.

4 Role of the Teacher: Creating Value for Collaboration

We know that the teacher’s participation is key to success in other computer-supported collaborative learning situations, and our experiences suggest that teacher participation is important on the CoWeb, too. The value of the teacher’s participation is not just in the content that they provide, however. The teacher also has important roles in establishing value for the space and in mediating the conversation. The teacher’s frequent participation in the CoWeb indicates that the teacher thinks that the CoWeb is valuable. In some activities (like a midterm exam review or discussion of a project assignment), the teacher’s non-participation can detract from the value of the activity. But in other activities, the teacher can provide value without participation.

In a graduate CS class, the teacher successfully used an unusual strategy for creating value for the CoWeb in her class. She was fairly active in the CoWeb during the first two weeks of the course, so that her “signature” link to her *Who’s Who* page appeared frequently in the CoWeb’s pages. But after the first two weeks, she found it difficult to visit the space often. However, in class, she made frequent references to the CoWeb, with comments like “That’s a great point. Could you please add that to the CoWeb?” and “I don’t know where to find that either, but could you find it and then put a link in the CoWeb?” Through this kind of in-class reference, the teacher kept a high-profile for the CoWeb and made clear that she found it valuable, even if she could not participate frequently.

The role of the teacher in mediating the conversation is a challenging balancing act. On the one hand, the teacher wants to provide information. But on the other hand, too much information kills the discussion. The role of the teacher is privileged and has enormous sway over the participants. Mark Guzdial discovered this in his own class during exam review sessions. He discovered that the worst thing that he could write on a students’ potential solution was “That’s right!” because, once the solution was identified, all discussion and potential solutions were moot. He found he could maintain more conversation by remarking, “That’s a good answer, but there are other acceptable alternatives too,” and even judiciously choosing not to respond to a particularly good solution. By not answering, he opened the door for other students who would occasionally question the solution, leading to an effective and on-topic discussion.

5 Summary

There are several heuristics that appear in this document that are helpful for promoting an active and valuable CoWeb. We summarize them here for reference:

- *Keep the CoWeb profile high.* This is best achieved by active teacher participation in posting to the Coweb, but if this is not possible then

constantly referring to it in class and encouraging students to post their comments to it can keep the CoWeb active.

- *Make the Posting Places Explicit.* Tell the students as explicitly as possible what you want where, this is particularly important at the start of using a CoWeb.
- *Give the CoWeb structure.* It can be frustrating for students if the CoWeb displays no structure because this may create the impression of devaluing their contribution.
- *Have some explicit activities that are successively more complex.* It can be difficult to achieve spontaneous use of the CoWeb. A few activities that have clear objectives can encourage students to experiment with the medium and start to use it spontaneously.
- *Avoid classes where collaboration is perceived as having a negative impact on grades.* This may seem obvious, but sometimes it is NOT obvious that your class is perceived this way. Collaboration is unlikely to happen in ‘weed out’ classes and in classes where there is a perception of an explicit ‘grade curve.’ It is also unlikely to happen for assignments and projects where it is perceived that there is one right answer.

6 Visual Images

The figures below summarize some of the thinking in the document in a more visual form, to help change the mode of representing the information.

The first image is that of a *virtuous circle* (Figure ??). The circle is organized around the interplay of *participation* and *value* and student and teacher.

The second image is that of a *downward spiral* created by the lack of structure (Figure ??). It should be noted that this spiral would connect with a *vicious cycle* of lack of participation and value.

6.1 Acknowledgements

Funding for this project is from the National Science Foundation Grant #REC-9814770 and the Mellon Foundation. Our thanks to our collaborators Lissa Holloway-Attaway, Jim Greenlee, Joshua Gargus, Colleen Kehoe, Jochen Rick, Kayt Sukel, Craig Zimring, Sabir Khan, and David Craig.

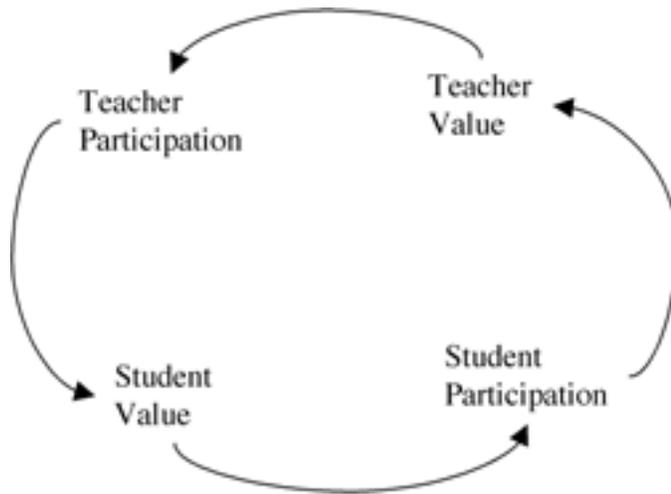


Figure 1: Virtuous Circle of Participation and Value

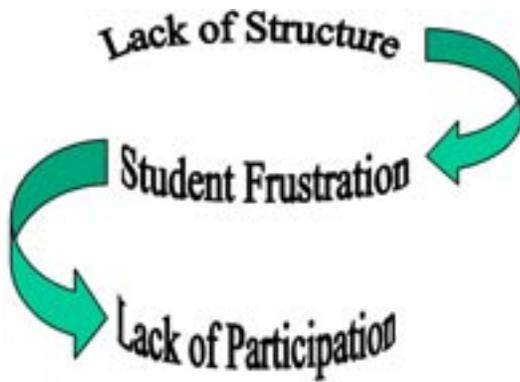


Figure 2: Spiral of a Vicious Cycle