

## Interactive E-learning - Why Can't We Get Beyond Bulletin Boards?

### ***Moderator & Summarizer:***

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### ***Discussion Schedule:***

*Discussion:* March 14-23, 2005

*Summing-up:* March 24-25, 2005

## **Pre-Discussion Paper**

Internet-based training and education typically relies heavily on the use of Web “bulletin boards,” also often called “discussion boards.” The purpose of such boards is to allow learners to post opinions or to respond to questions provided by the instructor. But what these boards do NOT do seems to go unrecognized.

## **Comparison of Discussion Boards and Shared-Document Environments**

And just what is it that discussion boards do not do? In general, we can say that discussion boards do not exploit the full range of opportunities that can be provided for interaction among learners and between learners and instructor. Contemporary models of exemplary pedagogical practice include constructivism and cooperative learning. Neither of these are supported well by discussion boards, but are well supported by the seldom-used environment of shared-document Web conferencing. In shared-document conferencing, learners work with application files such as documents, spreadsheets, and Power Point presentations. They can check these out and make changes in the files, provided that they have the requisite application software on their local PCs.

Constructivist learning requires students to build their own knowledge and understanding, typically by doing some task and producing some kind of deliverable. The deliverable could take the form of a report, a plan or recommendations, a literature review or Web quest, a data sheet, problem-solving exercises, insight challenges, a presentation, Web pages, portfolios, or other tangible materials that emerge as learners construct their understanding of the required subject matter. How can a learner do that with a discussion board?

Cooperative learning requires a group of learners operating as a team to help each other learn. Paradoxically, though seldom used in E-learning, cooperative learning works better on-line than it does in face-to-face classrooms. The reasons include: 1) All students can find the time to do their share of the work. No longer do they have the excuse of conflicting work or study schedules; 2) Thinking is more focused and clear because everything is done in writing; 3) Everybody is more accountable. Everyone sees what everyone else is doing (and not doing); 4) All inputs are organized and archived for later review and update.

For a group to share documents and application files on-line they could simply e-mail the files to each member of the group for their inputs, revisions, and edits. However, this means that there are as many versions of the file as there are members of the group. As a file goes through multiple edits by multiple group members, it can quickly become impractical to track the versions and incorporate the ideas from all versions into a single final file. In the shared-document world, all files are maintained as single copies on a file server. Unlike the “messages” in a discussion board, the shared-document files can be full-featured, multimedia files that members of the group can check out for insertion of new data and text, editing, and annotation. The advantages include:

- Files are organized.
- Files can be checked out by others and edited, annotated
- Files are all in one place - do not have to be circulated.
- Working memory becomes more effective, because more material can be seen in same place.
- Inputs from multiple group members can be seen in one file.
- Context for inserts and annotation is self evident.

- Messages are viewable with fewer mouse clicks to open and close messages, because they appear in one document instead of separate multiple postings.
- Messages can be expanded to full-featured, multi-media documents.

This is intended only as a brief introduction to constructivism and cooperative learning, enough I hope to get us started in this discussion. For those who wish to explore my writings on the application of constructivism and cooperative learning to E-learning, a reading list of some of my papers is appended.

So why are these models of good instructional practice so seldom used in E-learning? And what can we do about? These are the themes of this on-line forum. Hopefully, the input of the respondents will help to identify the causes of the problem and in so doing suggest ways to advance teaching practices in E-learning environments.

## **Possible Causes of Under-utilization of Constructivism and Cooperative Learning**

1. E-teachers adopt the dominant paradigm of face-to-face teaching. Most E-teachers, I assume, have migrated from the traditional classroom into E-teaching. As such, they bring with them the predominant teaching practices of the traditional classroom, namely, lecturing and class discussion. In the E-learning environment, lecture is replaced with Web pages, and class discussion is replaced with discussion boards. Constructivist and cooperative learning models for teaching originated in traditional teaching settings, but they have not dislodged the lecture from its exalted throne in academe.
2. Teachers tend to resist change. E-teachers have already found their comfort zone, using Web pages and discussion boards as the backbone of their teaching practice. Why expend the effort to do anything else, when this seems to suffice?
3. E-teachers, in their experience in the face-to-face instructional world, have had many bad experiences with cooperative learning. Such bad experiences invariably are caused by teachers who do not understand the formalisms of cooperative learning. Basically these are the need for 1) a well defined mission or task, 2) defined roles for each student member of the team, 3) inter-dependence among team members and shared ownership of the result, 4) a process for information gathering, assessment and organization, and 5) an efficient way to construct the deliverable, as for example in a shared, community file that is constructed asynchronously over time.
4. Some discussion board software is free. Other such software may come built in to a CMS such as Blackboard or Web CT. I should note here that my colleagues and I have developed a shared-document tool that can be used inside the WebCT Vista environment.
5. E-teachers may not realize the variety of things they could be having their students do in a shared-document environment that they cannot do with discussion boards.
6. Shared-document software is deemed to be expensive, complicated, and in need of support staff. The mother of all such software is the well-known product, Lotus Notes, and it certainly suffers all of these deficiencies. What is not known is that there are now other less expensive and more user-friendly products. All products still require support staff for the Web server, but that can also be said of discussion boards.
7. E-teachers don't know where to learn how to teach with constructivist and cooperative learning models in a computer environment. Where are the books? The only one I know about was just published (see first item in the reading list below).
8. E-teachers do not know about software environments that support shared-document conferencing. Vendors who supply bulletin board software will be the last people to tell teachers about competing vendors who sell shared-document products. Where can teachers find out about such software. Well for starters, "Google" it. My Google search on the terms "shared-document Web conferencing" led to 5,380 hits.

Several questions for discussion seem to emerge. I invite the discussion participants to submit their views and insights on the following:

1. How valid is the premise that shared-document conferencing is valuable and yet under-utilized in favor of electronic discussion boards?
2. Which of the various speculations about the cause of under-utilization seem the most pertinent?
3. What, if anything, can be done to promote more widespread use of shared-document conferencing?

## Reading List

Klemm, W. R. (2005). Use and mis-use of technology for online, asynchronous collaborative learning. In Tim S. Roberts (Ed.), *Computer-supported Collaborative Learning in Higher Education*, Hershey, PA, USA: Idea Group Publishing, 172-200.

Klemm, W. R. (2002a). Software issues for applying conversation theory for effective collaboration via the Internet. *Paper presented at the International Conference on Advances in Infrastructure for e-Business, e-Education, e-Science, and e-Medicine on the Internet*, July 29-August 4, 2002, Rome, Italy.

Klemm, W. R. (2002b). Extending the pedagogy of threaded-topic discussions. *The Technology Source*, Sept/Oct., retrieved March 10, 2005, from <http://ts.mivu.org/default.asp?show=article&id=1015>.

Klemm, W. R. (2002c). FORUM for case study learning. *Journal of College Science Teaching*, 31 (5), 298-302.

Klemm, W. R. (1998). Eight ways to get students more engaged in online conferences. *The Higher Education Journal*, 26 (1), 62-64.

Klemm, W. R. (1998a). New ways to teach neuroscience: integrating two teaching styles with two instructional technologies. *Medical Teacher*, 20, 364-370.

Klemm, W. R. (1998b). Using computer conferencing in teaching. *Community College Journal of Research & Practice*, 22, 507-518.

Klemm, W. R., & Snell, J. R. (1996). Enriching computer-mediated group learning by coupling constructivism with collaborative learning. *Journal of Instructional Science and Technology*, 1 (2), retrieved July 15, 2005, from <http://www.usq.edu.au/electpub/e-jist/docs/old/vol1no2/article1.htm>.

Klemm, W. R. (1995). Computer conferencing as a cooperative learning environment. *Cooperative Learning and College Teaching*, 5 (3), 11-13.

Klemm, W. R., & Snell, J. R. (1994). Teaching via networked PCs: what's the best medium? *Technological Horizons in Education Journal*, 22, 95-98.

## Post-discussion summary

### Questions Asked:

1. How valid is the premise that shared-document conferencing is valuable and yet under-utilized in favor of electronic discussion boards?

The advantages of collaborative work for developing student writing skills has been endorsed by Deirdre Bonnycastle at the University of Saskatchewan. In describing the 10 or so on-line classes she knows about that have a writing assignment, she said, for example, "In every class, the professor has commented on how much the writing of the individual students improves as a result of this activity. I'm unsure if it's the peer feedback, the modeling, the discussion or a combination of factors that causes the improvement but I think there is a major research opportunity for someone to look into this." These classes use the discussion board and chat features in WebCT, and it is not clear from her comments whether the students just critique each other's writing and or whether they collaborate in generating the writing assignment in the first place. Even if they just critiqued the writing, I contend that the reviews would be more comprehensive, convenient, and useful if reviewers could

check out the document and make their criticisms and suggestions in the context at specific points of the manuscript.

Deirdre goes on to contend that WebCT already does shared-document conferencing. What is required, however to share the documents in WebCT leaves much to be desired. All WebCT has is a regular, plain discussion tool. I don't think that attaching a document to a discussion posting, downloading the document, making changes and then attaching to a new discussion posting is anything close to true "sharing." I could use a Volkswagen to move all my stuff to a new house or I could use a truck. Both accomplish "moving" but which is a better way to do it? The point is that both do the same thing, but one way is more robust and convenient, especially if multiple users and versions of the application files are needed. Regardless of what software is involved, I would argue that teachers should get students working on application files, rather than just spouting off opinions in discussion forums. It doesn't take a much research or thought to have passionately expressed opinions.

Arthur Schneiderheinze says: "we need to make more clear the relative advantages of a shared-document conference over other forms of online interaction and/or face-to-face experiences. Shared-document systems need to be simple to use (and/or easy to learn) and incorporate a design that closely models users' current practices and values. People using these systems need to feel that the experience is worthwhile --- that the "deliverable" is something that is unique to this experience -- and could not have been produced as well or as easily/efficiently without participation in the system." Apparently he agrees that shared document environments are desirable (as long as they are easy to use). He didn't say whether my article provided the necessary rationale, but in any case, I am inclined to agree that the advantages of shared-document learning are not self-evident to a lot of instructors.

## *2. Which of the various speculations about the cause of under-utilization seem the most pertinent?*

Clark Quinn at OtterSurf Laboratories thinks that the main reason teachers don't use shared-document conferencing is that they don't appreciate what it can do and don't know about available software. He also believes that shared-document software is deemed to be expensive, complicated, and in need of support staff. Neither students nor teachers want to take the trouble to learn new software. He suggests that Wikis, which are simple to use, create a collaborative environment. However, the Wikis that I have seen do not seem to have much capability for anything beyond simple text annotations, and these are not in context. However, that is better than e-mailing around multiple versions of the same document.

Others, however, contend that this kind of software is underutilized because it is not needed. For example, Dawn Coburn, at Dunedin College in New Zealand, describes collaboration in a less-than-optimal on-line collaboration environment. She has been involved in working on collaborative documents in First Class (as she says, "not exactly state of the art technology") with the final output in Word. She admits that it was rather clumsy, but claims that they were able to achieve an outcome that they were satisfied with. Here is the process, as she describes it: "We divided the task up into parts, with a different person initiating each section. We all commented on the bits and then the person coordinating that part would tidy up and modify the documents. Since then I have worked on other collaborative documents with just Word tools. The use of Comments in different colors and Track Changes can enable interesting interaction around the core. She points out that the use of comments in different colors and Track Changes can enable interesting interaction. Again it has needed someone to initiate the core and a division of labor to spread the load, with a person assigned to do final formatting, proof reading etc. In the latter case we also met face to face and the preparatory work done on line made these meetings much more fruitful than they may have been." I noted similar benefits in our earlier version of version of FORUM that used MS Word. She also makes the point that occasional face-to-face meetings complement asynchronous group work, and I have noticed that in my own classes.

Bill Williams, at Setubal Polytechnic, Portugal, also seems to prefer the discussion-board model, using content on the discussion board to generate final outputs in MS Word or in html format. Both Dawn and Bill point out that the groups in such environments need to be small in order to simplify the document evolution process.

These approaches have the advantage that nobody has to buy anything that they don't already have (MS Word and a discussion board software), but the multiple versions created by multiple edits by multiple group members can still be awkward and frustrating. On the other hand, Clark Quinn argues that if the student groups are small, they can live with the hassles of e-mailing multiple versions involving multiple edits.

Bill Williams did express interest in our new shared-document WebCT tool. You can see a video demo at [http://www.cvm.tamu.edu/wklemm/MATRIX/Demo\\_movie/matrix1.htm](http://www.cvm.tamu.edu/wklemm/MATRIX/Demo_movie/matrix1.htm) . Williams wants to know if we will make it available free and give away the code as an Open Source. We are still formulating our policy, but we might make a beta release free to selected institutions. If interested, please send me a note on how you would like to use it and your local Web server capabilities.

Perhaps the most negative response came from Stephen Loosley in Melbourne, Australia, who does not accept the premise that shared-document E-conferencing is necessarily good pedagogy. In his words, "We are being asked what can be done to disseminate a technology which has yet to earn its stripes." He says that there is no proof, and that research is needed to demonstrate that such approaches assist learning. In other words, my question about how do we spread the word is getting the "cart before the horse." First, we have to show that such approaches are useful. I thought that the value of shared-document E-conferencing was self-evident. Apparently, not so. There is a whole body of constructivist literature that I could have gone into, but which is way beyond the scope of this paper. If constructivism needs defense, it has already been achieved in many other venues.

However, Stephen is not entirely dismissive and seems to accept the promise of this kind of pedagogy when he says, "If we get this right it could be an excellent world ed discussion resource." My concern with this statement is that it seems to indicate that Stephen missed the point. Shared-document conferencing is much more than a "discussion resource." Indeed, I am trying to say that educators need to get students to move beyond cheap talk to the more challenging, creative, and production processes of generating academic deliverables.

Stephen originally recommended the free collaboration environment, "Moodle." However, such environments can be deceptive, seeming to offer capabilities that they really do not have. For example, Moodle does not:

1. allow users to check out and work on each other's documents.
2. allow in-context linking to user-created comments, to Web sites, or to library resources.
3. even have a resource library, created by the users, where they can check out and use third-party software (Power Points, spreadsheets,etc.).

Stephen's further research has surfaced another free collaboration environment, a Moodle spin-off, called EdNA (<http://groups.edna.edu.au/>). Each group receives a space in which users can choose from a range of tools to facilitate communication and collaboration. For example, they can set up web forums and live chats; share web-links, files and images; create web pages and Wikis; poll or survey members, and add RSS newsfeeds from EdNA Online. Groups can be public (open to all) or private (invitation only).

### *3. What, if anything, can be done to promote more widespread use of shared-document conferencing?*

Nobody commented on this question, perhaps because nobody was convinced there was a need to promote shared-document conferencing in teaching. My own sense of the issue is that many people are conflicted. They want to believe that things are fine the way they are, but down deep they have the lurking feeling that maybe they could teach more effectively if their on-line students could function in a fully shared-document environment. As the popularity of Wikis indicates, people are starting to warm up to the idea of sharing a Web document. I predict that there will be a slow evolution of sentiment to accept an extension of the Wiki model to a more comprehensive work/study collaborative environment.

The need to promote shared-document conferencing may be moot. Microsoft has just bought out the company that makes "Groove," which is a sophisticated shared-document system created by the founder of Lotus Notes. Microsoft's marketing muscle will likely bring a large degree of understanding and acceptance of shared-document conferencing. If Microsoft runs true to form, it will bundle a shared-document environment into their office suite of software and will slam the door in the face of all potential competitors. But don't look for Microsoft to make the product simple to use or inexpensive.