

Putting Tools into Courses, not Courses into Tools

Karen A. Lemone
WPI Computer Science Department, USA
kal@cs.wpi.edu

Abstract: Web-based distance education relies on communication tools to allow students and instructor to collaborate and to decrease the isolation often present in these courses. These tools are often packaged in Course Management Systems such as WebCT, BlackBoard, and free counterparts such as Manhattan and Moodle. These systems provide communication tools such as electronic bulletin boards, chatrooms and sometimes even online “white boards” as well as tools for grading and quiz creation. They allow (require) instructors to upload their course materials. But, today, almost anyone can create a course web site. It is this site that students perceive as the course, not the Course Management System. OfCourse! is a set of tools that instructors can integrate into their pre-existing web courses to maintain the feel of being in a *course* not a *Course Management System*.

Introduction

Moore & Kearsley [Moore & Kearsley, 1996] presented the notion that geographical distance could be bridged using Technology, but both parties must seek to overcome the communication gap. Moore describes "the universe of teacher-learner relationships that exist when learners and instructors are separated by space and/or by time" [Moore, 1993]. This universe consists of interactions between learners and teachers, the structure of the instruction, and the self-directedness of the learner. These three parameters are called: Interaction, Course Structure, and Learner Autonomy. The separation leads to patterns of learner and teacher behaviors, a psychological and communications space between the two, and potential misunderstanding. Transactional distance is relative and different for each person as well as for each distance learning course.

The relationship between dialogue, structure and learner autonomy can be described a number of ways. For example: 1) the greater the structure and the lower the dialogue in a course the more autonomy the learner has to exercise; 2) the greater the autonomy of the learner the less the learner depends on dialog and course structure. Other interactions can be identified. Dialogue and structure are determined by the nature of the communications media being used, the philosophy and characteristics of teachers, the learning styles of learners, and the constraints imposed by the course (such as time and due dates).

Interaction

According to Moore and Kearsley, instructional dialogue should be “purposeful, constructive and valued by each party”, that is, it should be positive and of a synergistic nature, but directed towards an improved understanding by the student.

The extent and nature of dialogue is determined by the educational philosophy behind the course, the design of the course, the personalities of teacher and learner (teaching and learning styles), the subject-matter of the course, the content area, the academic level, the medium of communication, the number of students each distant teacher is responsible for, as well as other factors.

Course Management Systems provide various communication tools for dialogs including chat rooms for synchronous communication and bulletin (discussion) boards for asynchronous communication.

Structure

This second variable (or set of variables) determining transactional distance expresses the rigidity or flexibility of the course's educational objectives, teaching strategies, assessment methods, and the ability to accommodate to each student's learning style.

A highly structured medium often encourages little or no dialogue with and between learners. A less structured medium allows more dialogue and a wide range of alternative responses to students' questions. Too much structure often increases the transactional distance.

Learner Autonomy

Learner autonomy is the extent to which, in the teaching/learning relationship, it is the learner rather than the teacher who determines the goals, the learning experiences, and the evaluation decisions of the learning. This can vary according to course structure and interaction as well as with the learning style of the student and even the culture in which the student learns and the teacher teaches.

The greater the transactional distance, the more autonomy the learner will exercise making judgments, deciding about study strategies, and to what extent to use the provided material or to seek alternative material. Not all students can perform this way as described below.

OfCourse!

OfCourse! is a Course Management System (CMS) that differs from Systems such as BlackBoard, WebCT, Manhattan, and Moodle in that the tools are integrated into already existing web-based courses. See <http://www.cs.wpi.edu/~kal/courses/awt> and click on "Tools." The goal is for students to feel they are "in a course" rather than just reading course documents within a CMS. Figure 1 shows (part of) the top-level page for the distance learning course *Adaptive Web Technologies*.

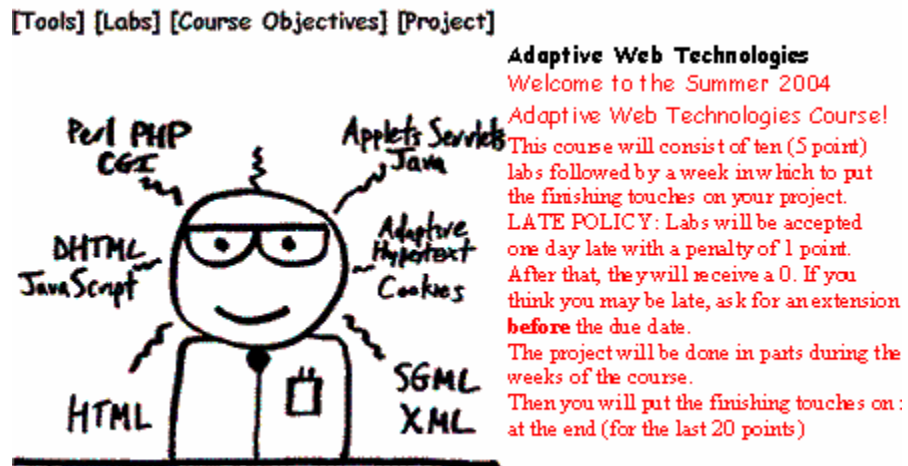


Figure 1 Course Main Page

Figure 2 shows the results when students click on the *Tools* button (shown on top left corner of Figure 1.)

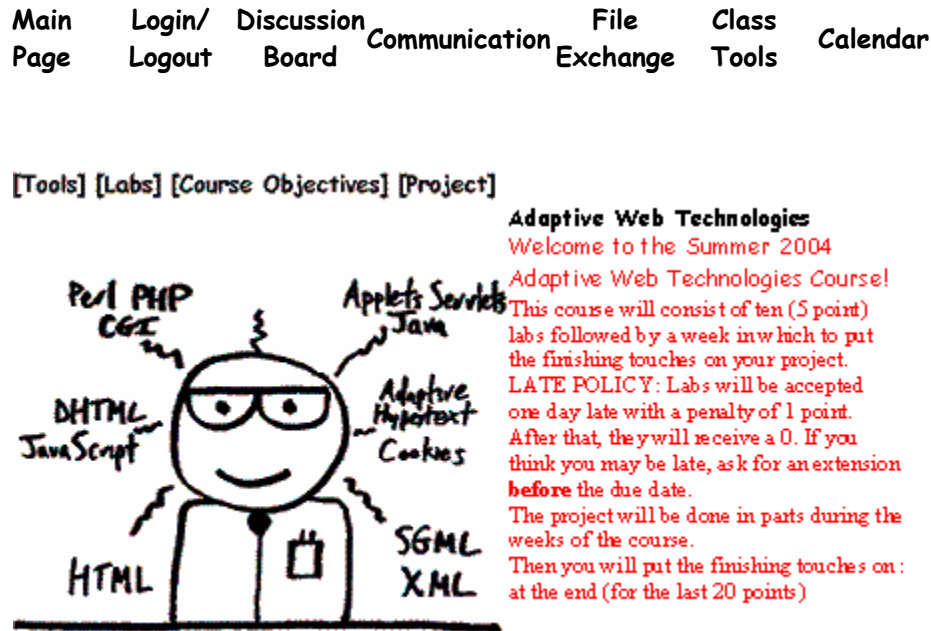


Figure 2 Course Top-Level Page with Tools Inserted

At no time do the students have to “leave” the course to use the tools. The following sections describe experiences in three courses: a blended distance learning (the first part took place in the classroom) course in Nepal, a different type of blended learning with Icelandic students, and an entirely distance learning course of American students. All three are analyzed with respect to how they decreased Transactional Distance addressing the three parameters Interaction, Structure and Learning Autonomy. Results were influenced by student age, background, culture and learning style.

Course Analyses

This section describes three distance learning instances that used the embedded tools in course web pages.

1. Nepali Students

The first three months of the course took place face-to-face in the classroom at Kathmandu University in Nepal. The last two months took place via distance learning (while the instructor was teaching the second course described below in Iceland) .

Face-To-Face Portion The initial three months of the course took place in the classroom at Kathmandu University. These meetings were subject to frequent school closings by the Maoist terrorists.

Interaction (Dialogue) Nepali students have been “trained” not to ask questions in the classroom, so other techniques were needed to discover if they understood the material. Interestingly, they were not hesitant to ask questions when they viewed the material and did exercises in the computer lab. Thus, interaction there had a smaller transactional distance (TD) than in the classroom. Learning to use the course management tools for interaction also proceeded slowly. Never having used them, they saw so reason to do so. Eventually, however, they did begin

Course Structure The entire course was present on the web (<http://www.cs.wpi.edu/~kal/courses/compilers>). The site consisted of two parts: the course content and the communication tools. During the face-to-face portion of the course, the students learned to access the content on the web. However, a post survey showed that they wished they had used a textbook. Interestingly, the material was an online version of two texts the instructor had written (Lemone, 1992a, 1992b). Even printing the material did not satisfy them: they wanted the comfort of a bound traditional text. As mentioned above, they resisted the communication tools (bulletin board, email etc.) because the mode was unfamiliar to them.

Learner Autonomy As described above, independent learning had not been encouraged in their educational background. With the teacher present, the class expected that all information would be “passed on”. They did not do well in the homeworks that required an application of the material. They also performed poorly on exams; the course required analysis; memorization wasn’t going to allow them to master the material.

Distance Learning Portion The web-based distance learning portion took place in the last two months. The student survey showed that this was by far their least favorite part of the course.

Interaction (Dialogue) The students had learned to use the communications tools in a limited way before the distance learning segment took place. Because they were still all together days at the university, they tended to continue posting as a group. Individual postings were often about personal issues such as grades. Never did anyone post an answer to another’s question despite my urging to do so. Because of frequent school cancellation by the terrorists, scheduling of chat room sessions did not work.

Course Structure The material from the instructor’s texts had been divided into small “chunks” for easier grasping of the content. However, the material was static compared to the unfolding of algorithms etc. in the classroom. The students could not understand many of the algorithms. Other references intended to supplement the instructor’s material appeared not to be helpful either. (A related project by the author later animated some of these algorithms). As with the face-to-face portion, they wished the material had been in textbook form.

The course material is divided into modules with readings and a homework for each. The students had no difficulty using the file submission tool for their identical and individually submitted homeworks.

Learner Autonomy This variable increased the Transactional Distance the most. Nepali’s are *interdependent* rather than *independent*. Numerous studies (Moore, 1993) show self-directed learners do better in web-based distance learning courses. When the Nepali students did not understand a concept, they were (psychologically) unable to search for references to help.

2. Icelandic Students

In 1955, the Icelandic author Haldór Laxness won a Nobel Prize for his 1946 book “Independent People” which described a man too independent for his own good. Icelanders pride themselves on their *independence*. This trait emerged in the course at the University of Iceland where half the students chose to take the course via web-based distance learning.

Technologically savvy and computer literate, the Icelandic students needed little in the way of support to thrive. The distance learners did as well or better than their peers who chose to come to class (at 8 a.m. in the dark of winter!).

Interaction (Dialogue) Like the Nepalis, Icelandic students do not ask questions in class. This carried over to the distance learners. In one instance an excellent A student did not submit a weekly lab; she explained that she did not understand it. When asked why she didn’t post a question (they could post anonymously if they wished), she said she “couldn’t do that”. There were a few foreign (mainly Asian) students in the class; they did post questions. Also, the Icelandic students didn’t help their classmates out by posting answers even if they knew the answer. On the project, most Icelandic students worked separately rather than as teams. Icelanders are not *Interdependent* compared to the Nepalis.

Course Structure The students had no problems reading the material online. Iceland is one of the world's most Internet-savvy cultures. Weekly lab submissions were no problem online.

Learner Autonomy This variable decreased the Transactional Distance the most. Icelanders are *independent* rather than *interdependent*. As mentioned, numerous studies (Moore, 1993) show self-directed learners do better in web-based distance learning courses. When the Icelandic students did not understand a concept, they had no problem going out on the web to search for references to help.

3. American Students

Not all American students are suited for distance learning. Some will always need the "comfort" of the classroom and the physical presence of an instructor. Further studies are needed to determine whether this is because of experience or learning styles. The data here were gathered from numerous distance learning courses taught by this instructor.

Interaction (Dialogue) Unlike either the Nepalis or the Icelanders, American students have no problems asking questions. Bulletin board postings were numerous especially as due. In addition, chatrom sessions were attended by many. These especially decreased the Transactional Distance surveys showed. Being "together" at one time in the "same place" improved student morale and decreased isolation.

Course Structure The students had no problems reading the material online, although many mentioned printing it out. Most, but not as many as the Icelanders, were able to go out on the web to find further information.

Learner Autonomy American students vary in *independence* and *interdependence*. In general, they tend to be less interdependent than the Nepalis and more interdependent than the Icelanders. Similarly, they are more independent than the Nepalis, but less independent than the Icelanders. About half of the students choose to work in groups.

Conclusions

Integration of the course tools into the course website decreases Transactional Distance, but this varies among the three cultures analyzed and among the three variables addressed. Analysis of Transactional distance for the three variables: Interaction, Course Structure and Learner Autonomy showed that the Transactional Distance was great for the Nepalis. All three variables increased Transactional Distance for them. For the Icelanders, only Interaction caused an increase in Transactional Distance; the other two variables decreased the Transactional Distance. For American students who are comfortable with distance learning, all three variables were decreased by the course tools, with the chat room decreasing interaction the most. Only the Icelanders and the American students were familiar with other course management tools. Surveys indicated that Transactional Distance was decreased more by integrating tools into the course rather than connecting to a course management system with uploaded content files.

References

- [1] .Adhikari, Uddhab, Kumar. (2002). Nepal. Report of the Asian Productivity Organization Seminar on Multimedia and e-Learning: A New Direction for Productivity Promotion and Enhancement, Republic of China, 25-29 March 2002.
- [2] Lemone, Karen. (2004). Nepal to Iceland and Back: Distance Learning Characteristics of Two Cultures. *The Exchange: New England Faculty Development Newsletter*, October, 2004 (<http://www.nefdc.org/exchange.htm>)
- [3] Lemone, Karen. (2001). The Distance Teacher: The Ultimate Distance Learners, *Proceedings of SITE2001*, Orlando, FL, April 2001.

- [4] Lemone, Karen. (1999). Web-based Teaching Tools: Addressing the Paradigm Shift, *presented at Plenary Session of ComCon 7* in Athens, Greece, June 1999.
- [5] Lemone, Karen. (1999). Real Instructors Don't Go to Chat Rooms, *Proceedings of WebNet 99*, Honolulu, November 1999.
- [6] Lemone, Karen, (1993a) Fundamentals of Compilers, An Introduction to Computer Language Translation, CRC Press, 1993.
- [7] Lemone, Karen, (1993b) Design of Compilers: techniques of Programming Language Translation, CRC Press, 1993.
- [8] Moore, Michael, Theory of Transactional Distance in *Theoretical Principles of Distance Education*, (Routledge Studies in Distance Education) by Desmond Keegan, ed. 1993.
- [9] Moore, M. G., & Kearsley, G. (1996). *Distance education: A systems view*. Belmont, CA: Wadsworth Publishing Company