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TEACHING LABOR RELATIONS: OPPORTUNITIES AND CHALLENGES OF USING TECHNOLOGY

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Abstract

This article outlines possible uses of information technology, especially the Internet, in the teaching of labor relations. Existing and potential examples from labor relations courses and training programs are used to present three major categories of uses of technology: resources for instructors to use in preparing traditional face-to-face courses, technological enhancements for traditional courses, and online or Web-based courses. Logistical challenges are identified and the exciting pedagogical opportunities of using technology to promote active and collaborative learning using diverse materials are discussed. An accompanying Web site (*www.laborrelations.cc/tech/*) contains all of the links and additional resources.

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I. *Introduction*

Whether labeled e-learning, Web-based education, Web-enhanced instruction, computer-mediated education, or distance education, debates and materials on the role and use of new information technology in education and training abound. It is safe to assert that the teaching of labor relations, in both credit and non-credit courses, will be affected by these broader trends, though the extent and nature of this impact remains uncertain. To help inform the labor relations teaching community, I describe actual and potential uses of technology in the context of labor relations education and training and identify opportunities and challenges.

My focus is information technology – the use of computers to process and transmit information. Most discussions of information technology pertain to the Internet and the World Wide Web and this is true herein, but some mention will also be made of other applications such as CD-ROMs. Note carefully that information is potentially much more than static text – it can be multimedia and, more importantly for education and training, it can include electronic conversations between two or more individuals.

It is becoming commonplace to distinguish between traditional courses, Web-enhanced courses, and Web-based courses.[1] Traditional courses are classroom-based, face-to-face courses that do not use the Internet or other types of information technology in a meaningful way. Course content is delivered in the classroom and through other traditional means such as research projects. Web-enhanced courses are traditional courses that incorporate information technology to aid learning. Examples include making class

[1]Bonk and Dennen (1999) and Bonk et al. (2000) go one step further and provide a thought-provoking 10-level continuum of the degree of Web integration into college courses. Level 1 consists of using the Internet to post a syllabus and market the course while level 10 is an institution-wide initiative to pursue Web-based courses.

notes available on the Internet, Internet-based or CD-ROM exercises, and chat or threaded discussion virtual learning communities. Some Web-enhanced courses may involve reduced classroom time, but classroom meetings are still a central feature of Web-enhanced courses. Lastly, Web-based courses are delivered through the Internet without classroom meetings.

It is tempting to view this categorization as a continuum where traditional courses do not use any technology, Web-enhanced courses use some degree of technology, and Web-based courses use the most technology. However, in practice some Web-based courses are simply correspondence courses with e-mail submissions of assignments and there are clear examples where Web-enhanced courses are using more sophisticated technological tools than some Web-based courses.

Unfortunately, research on the effectiveness of using technology in education currently lags behind implementation. At a broad level, many important questions of how distance learning compares to traditional, classroom-based education are unanswered (Phipps and Merisotis, 1999). At a micro level, the effectiveness of specific instructional tools has not been thoroughly evaluated using careful research methodologies (Miller and Miller, 2000). Until there is a sound empirical research base, instructors will need to rely on anecdotal examples, theoretical principles, best practices from traditional settings, and their own experiences for creating meaningful learning activities in labor relations using technology.

Herein, I discuss the role of technology in labor relations instruction in both credit and non-credit courses. Section II discusses key terms and technological tools. Section III describes technology as a resource for instructors in which the delivery of the course is not altered, but technology multiplies the information available to instructors as they prepare courses. Section IV considers the myriad ways in which new technology can supplement a traditional, classroom-based course and Section V discusses online

courses. Finally, a brief review of learning theory is presented so that the pedagogical issues of technology-mediated instruction can be understood in a more critical fashion. In particular, I argue that learning theory implies that instructors should not view technology as a new way to deliver lectures and content, but rather should treat technology as a tool to promote active and collaborative learning.

I encourage you to explore the links contained in this article and to make this easier, I have created a Web site (*www.laborrelations.cc/tech/*) to accompany this article. All of the links can be accessed from this Web site. I also welcome e-mail submissions (*jbudd@csom.umn.edu*) of other examples of the use of technology in labor relations teaching and training. To facilitate further exchanges of ideas, I will post these additional examples and resources on the Web site at *www.laborrelations.cc/tech/*.

II. *Overview of Terms and Tools*

To ensure an understanding of the possible applications of new information technology to teaching labor relations, it is important to define key terms and outline the major technological tools. As noted above, it is important to distinguish between Web-enhanced courses (which include significant face-to-face interaction) and Web-based courses (which rely on the Internet to deliver nearly all or all of the course). The latter often fall under the heading of distance education, but this term is being replaced by the terms distributed education, online education, and e-learning.

The World Wide Web is often characterized as a hypertext environment because of the now-familiar ability to link pages and materials. More recently, some argue that "hypermedia" is more accurate because of the ability to integrate audio, video, and graphics.[2] Hypertext and hypermedia capture the

[2]Both terms, hypertext and hypermedia, apparently ignore that the prefix "hyper" can mean excessive, though many might argue that "excessive media" is an accurate description of the Internet and

information component of the Internet, but of equal importance is communication among users.

The communication capabilities of the Internet include chat rooms, discussion forums, e-mail, and video conferencing. Perhaps the most basic form of communication is e-mail. To facilitate e-mail communication among multiple individuals, a listserv can be created in which subscribers can send an e-mail message to all subscribers by sending a message to a single e-mail address. Discussion forums involve posting messages on a message board where others can read the message and post responses. Most discussion forums are organized by discussion threads which means that all of the messages pertaining to a specific topic are grouped together. Posting a message on a new topic starts a new discussion thread. E-mail and discussion forums are examples of *asynchronous communication* (as is grading an exam in a traditional class) because the exchanges do not occur at the same time. For example, the participants can check their e-mail or the discussion forum at any time. E-mail and listservs are convenient because all messages are delivered to a single location, but at the same time it can be difficult to follow the threads on active listservs with many participants and frequent messages on varying topics.

Chat rooms are online exchanges in which the participants read and post text messages in real time – everyone is logged on simultaneously. Because they occur at the same time, chat rooms and video conferences are examples of *synchronous communication* (as is a face-to-face lecture).

Lastly, there are various course authoring and course management platforms to help educators deliver Web-enhanced or Web-based courses. Major examples include WebCT (*www.webct.com*), Blackboard (*www.blackboard.com*), e-education (*www.jonesknowledge.com*), Top Class

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many Web sites.

(*www.wbtsystems.com*), and eCollege (*www.ecollege.com*). These platforms generally allow instructors to create password-restricted course sites that include Web pages, online quizzes, chat rooms, discussion forums, electronic whiteboards, and online gradebooks (Palloff and Pratt, 2001). Various textbook publishers offer similar platforms. If an instructor would like to do more than put PowerPoint slides on a course Web site, these platforms are a good option. But a theme that bears repeating is that all of these are simply tools; by themselves, they cannot create learning.

III. *Resources for Instructors*

Although often overlooked in discussions of technology in education, a first key way that instructors can use technology to assist their instruction in labor relations is by using the Internet as they prepare traditional, face-to-face courses. By effective Web searching, instructors can find recent case examples to support a specific teaching lesson, check the status of proposed legislation, obtain up-to-date statistics, access journals not available at a local library, correspond with other instructors using e-mail, and myriad other activities. In my own teaching of labor relations, I have used the Internet to get updates on Shunto in Japan, access the text of Germany's codetermination law, and find recent examples of Presidential Emergency Boards under the Railway Labor Act. I have also used the "Teaching CB" listserv to exchange teaching ideas with other instructors in the collective bargaining area.[3]

There are also sites devoted to providing resources for teachers, especially at the K-12 level. The Illinois Labor History Society has an online "Curriculum of United States Labor History for Teachers" (*www.kentlaw.edu/ilhs/curricul.htm*). This site contains resources for teachers to integrate labor history

[3]To subscribe to the Teaching CB listserv, see the instructions at *www.laborrelations.cc/tech/*.

into U.S. history classes and includes exercises and handouts for teachers to use. The Web site Workday Minnesota (*www.workdayminnesota.org*), which is a partnership between the University of Minnesota's Labor Education Service and the Minnesota AFL-CIO, contains a section "Untold Stories: Learning About our History." The Untold Stories section contains a printable City of St. Paul labor history map and 10 lesson plans, complete with objectives, supporting materials, individual and group activities, and vocabulary words for teachers to use. The California Federation of Teachers has an online resource guide for K-12 teachers (*cft.org/comm-n/labsch/labsch5.shtml*) which provides readings and other materials to help teachers incorporate California labor history into the curriculum. As a model for a more extensive site, EconEdLink (*www.econedlink.org*) provides over 100 online lessons, a newsletter, a listserv, and other resources to help K-12 teachers deliver economics lessons in their classrooms.

Unions can also provide information to trainers in this manner. The training arm of the European Trade Union Confederation (*www.etuc.org/etuco/*) has put various materials for union trainers on their Web site including training materials for European Works Councils members. For example, a trainer can download – in English, French, or German – both trainer and participant instructions for a European Works Council simulation, United Ferucci, and conduct a training session on information sharing. The European Trade Union Distance Education Project (*www.etude.org*) is in the process of developing a "knowledge pool" which will be a database of training materials for trainers to use (Creanor and Walker, 2000).

In sum, educators and trainers can significantly enrich traditional, face-to-face classes by using the Internet as a source of information – even without directly bringing technology into the classroom for students to use.

IV. *Technological Enhancements for Traditional Courses*

There is even greater potential for enriching traditional face-to-face classes by having students use information technology applications. This section will outline a range of possibilities for creating Web-enhanced courses related to labor relations. I divide the opportunities into access to information, technology-based exercises, and virtual learning communities.

Before turning to these opportunities, my unscientific solicitations (e.g., via several listservs) for information about how labor relations instructors are using technology in their classes suggests that many are simply using the Internet to post copies of their PowerPoint lecture presentations. While students find this valuable, this is just the tip of the iceberg in terms of using technology to enhance traditional face-to-face courses – and instructors should be emboldened to experiment more ambitiously.

Access to Information. If one can sift through the "incredible amounts of trivia, misinformation, bad manners, hostility, stupidity and other vagaries of mankind" (Crossman, 1997, p. 22), the amount of information available via the Internet, and on CD-ROMs, is astounding. With appropriate structure and guidance, this information can be productively incorporated into traditional classes.[4]

For the labor law and grievance arbitration aspects of labor relations courses and training, student access to cases has been greatly enlarged via the Internet and CD-ROMs. A leading Canadian arbitration reference book, Brown and Beatty (1988), is now available in a CD-ROM version which includes full-text

[4]The role of professors and subject matter experts appears to be changing from one of knowing where to find information (pre-Internet) to knowing how to sift through vast amounts of information that is widely available and determine what is sensible and meaningful. Students need to be taught how to be discriminating in their use of Internet-based information and also appropriate citation techniques (which should include the date accessed). They also need to be reminded that excellent materials are sometimes only available offline in traditional print form.

access to arbitration decisions whereas the text version can only provide case citations. Internet access to Findlaw (*www.findlaw.com*) or Lexis-Nexis (*www.lexis-nexis.com*) also provides students with access to labor law and arbitration decisions. While cases have, of course, been available in hard copy in libraries for many years, the speed of access, including very fast and thorough searches, made possible by Internet or CD-ROM availability makes it more manageable for students to use cases more extensively than previously. This technology also makes it possible to simulate a business setting with pressures to deliver fast yet informed and accurate answers. Daphne Taras and Allen Ponak (University of Calgary) pose questions that labor relations professionals might face in the workplace and give students 30 minutes to construct an informed answer. The CD-ROM version of Brown and Beatty (1988) makes this possible.

More broadly speaking, students can explore a number of Web sites to gain firsthand knowledge of diverse aspects of labor relations – often directly from the participants. The National Labor Relations Board (NLRB) (*www.nlrb.gov*) has extensive information, including practitioner-focused overviews, forms, manuals, and recent cases, which can easily be incorporated into labor relations courses. In a traditional, face-to-face labor relations course, Michael LeRoy (University of Illinois) has Internet readings for nearly every section of the course including materials from the Web sites of the AFL-CIO, Air Line Pilots Association, Steelworkers, National Right-to-Work Foundation, Labor Policy Association, NLRB, and Equal Employment Opportunity Commission. The latest edition of the textbook by Holley et al. (2001) includes similar Internet exercises at the end of each chapter and the next edition of Fossum (forthcoming) will also include a variety of relevant links. To better reach individuals with diverse learning styles, instructors can direct students to the Labor Heritage Foundation resources (*www.laborheritage.org*) which include music, art, and cultural events relevant to labor relations.

The wealth of information pertaining to labor history bears special mention. While it is possible to argue that legal cases, materials from the NLRB, the AFL-CIO, and elsewhere have been widely available in print form prior to the Internet, the same is not true for archival materials. But as more archived documents are scanned and put online, there are wonderful opportunities for instructors to have their students use historical, primary source materials. Online exhibits include labor and the holocaust at the Tamiment Institute Library (*www.nyu.edu/library/bobst/research/tam/*), the 1911 Triangle Shirtwaist Factory fire at Cornell's Kheel Center (*www.ilr.cornell.edu/library/kheelcenter/*), the Bisbee Deportation of 1917 at the University of Arizona (*digital.library.arizona.edu/bisbee/*), and the Haymarket Riot at the Chicago Historical Society (*www.chicagohistory.org/dramas/*). These exhibits make excellent use of primary source materials so, for example, students can see the actual guilty verdicts from the trials following the Haymarket Riot, Bisbee Deportation photographs from 1917, and political cartoons from 1911.

Given the overwhelming nature of the Web, it is important to manage students' explorations of the Internet. The online exhibits are excellent examples because the exhibits are each contained within single, easy-to-navigate sites and have been produced by reputable, scholarly organizations. As a less ambitious and polished example, I assembled a Web page for labor relations students in my traditional labor relations course at the University of Minnesota to investigate the TEAM Act (*www.laborrelations.cc/teamact/*). This page includes links so that students can find the text of the bill on the U.S. Congress Web site, see how individuals legislators voted on the bill in 1995-1996, and read various opinion pieces from labor, management, and academia.[5]

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[5]This page also illustrates some difficulties with using the Web in this way – changing addresses and the lack of continuing availability of some materials. For example, there was an exceptionally relevant site

Multimedia CD-ROMs can also be used to package information together and make it available to students and instructors. For example, the California Federation of Teachers developed a CD-ROM for K-12 teachers which includes video segments and photos on farm labor. In addition to packaging the material together, this has the added advantage of not relying on Internet connections to download large multimedia files.[6] However, new CD-ROMs need to be reproduced whenever there is an update, and not all students or classrooms have access to CD-ROM drives.

Technology-Based Exercises. Another way to use new technology to enhance face-to-face labor relations courses is through technology-based exercises. Many labor relations courses contain a collective bargaining simulation in which students negotiate a new contract. I have developed a simulation between a fictional hotel (The Zinnia) and a local union in which all of the materials are available on the Web (*www.laborrelations.cc/zinnia/*).[7] The materials are structured such that there are realistic hotel and local union home pages. Students can decipher the important elements of the environment by exploring these pages. In contrast to a traditional, printed simulation which might say "There are a significant number of immigrant workers in the union," the students have to be more active in the Web-based exercise and figure out that issues pertaining to immigrant employees are important because there is an announcement on the

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(the TEAMWORK for America Initiative) devoted to lobbying for passage of the TEAM Act, but this has since been taken down. For some specific pages from other sites, I was able to obtain permission to copy the document to my server, but this is not always possible and involves extra effort to obtain permission (response rates are not high) and, if desired, make the duplicate page appear as it does on the original site using the same graphics and background.

[6]The video segments range in file size from 12 MB to 100MB – with current bandwidths, few individuals could download these files over the Internet.

[7]Various instructors from the United States and Canada have used this exercise in their own classes. I am happy to allow others to use it, but please contact me via e-mail (*jbudd@csom.umn.edu*).

union's Web site for an upcoming rally supporting protections for immigrant workers. There is also a basic costing spreadsheet which students can download, and password-restricted pages for management or union-only material. I also include several javascript pop-open windows so, for example, students can click on "Accounts Receivable" on the balance sheet and a small window opens up to provide a definition. Note that the actual negotiations usually take place in a traditional face-to-face setting, though below I describe some experiences with online negotiations.

As another example, the major course management platforms have quiz tools so that instructors can give online quizzes and exams.[8] For multiple choice, matching, true/false, and fill-in questions, online quizzes have significant positive aspects. While it takes some work to get the questions uploaded into the system, grading is done instantaneously by the computer. Instructors are saved the time of grading and students can see their results immediately. Moreover, the quiz can easily be constructed to randomly arrange the order of the questions or pick questions at random from a larger set so that students don't get identical quizzes. Also, feedback for incorrect answers can be programmed in and provided to the students. For example, a student who answers "true" to the question "A full and impartial investigation conducted after an employee has been discharged is consistent with accepted standards of just cause" can be provided with feedback reminding the student of the importance of investigating employee behavior before disciplinary action is taken. Instructors and students also have immediate access to summary statistics not only for the exam as a whole, but for each question. Instructors can use this to monitor the

[8]It's also possible to give open-book exams via e-mail which makes it possible to accommodate the work and travel schedules of adult learners – and the instructor (Richard Hannah, private correspondence).

validity of their questions and to see what topics need additional clarification.

My experience giving an online final exam in my labor relations class illustrates the pros and cons of online exams. All of the advantages described in the previous paragraph were evident and the students especially appreciated the immediate results for the multiple choice and matching questions. I also included two essay questions on the exam. Students wrote their answers in Word and then cut and pasted them into the online exam. This yields a disadvantage relative to traditional exams: to grade the essay questions, I had to log into the system, access each student's exam, print out the relevant pages for the essays (or read them online), grade the essays, log back into the system, access each exam again, and enter the grades.

I also had one substantive concern and several technological and logistical challenges to tackle. Substantively, because this was not an open-book exam I wanted to proctor the exam in a networked classroom, but from previous computer lab experience it is apparent that it is much easier for wandering eyes to see the computer screens next to and in front of them than if students are writing a traditional pencil and paper exam. To try to remove any temptation for this behavior, I configured the exam so that students could not go back and revisit earlier questions (like the online GRE) and I had the computer select questions at random from a larger pool. Logistically, I had to find an exam time in which the appropriate computer-based classroom was available that did not conflict with the students' other exams. Technologically, the students and I were all concerned with the system crashing (which thankfully did not happen), and I also made everyone take a practice test on their own ahead of time to make sure that everyone knew their password for accessing the system and that they experienced the nature of the online test before the real thing. At the beginning of the exam we had to make sure that all of the Internet browsers were configured correctly and then the timed-release function to allow student access at a certain

time was not working. During the exam, several students clicked too quickly and did not have their answers to several questions saved. Most of these things can be easily remedied for next time, but they underscore the additional non-instruction effort required when bringing technology into the classroom.

Lastly, Richard Hannah (Middle Tennessee State University) has experimented with using online video and audio for delivering brief, thought-provoking statements for student reflection and debate (*www.mtsu.edu/~ceconed/Employment.htm*). Students can listen to a statement on union franchises or on compensation transparency, for example, and develop "pro and con arguments as to their merits and potential for acceptance and implementation." While these statements could be delivered in text-format prior to the development of the Internet, using audio can stimulate interest simply by being a change of pace and by connecting with different learning styles.

Virtual Learning Communities. As discussed below, the aspect of the Internet that has created the most excitement among educational theorists is the communications dimension and the resulting potential for interaction and collaboration across time and space. The two technological tools that currently receive the most attention are threaded discussion forums and chat rooms. E-mail and listservs can also be used, but if e-mail traffic is high, it can be difficult to follow the discussion threads in this less-structured environment.

I have used a threaded discussion forum in my labor relations course with some success. In particular, I assign specific NLRB decisions to small teams of students and each group posts a brief of this decision to the discussion forum that describes the factual background of the case, the legal ruling and its logic, and the important legal and practical implications. The entire class is responsible for reading all of the postings and they receive participation points for posting questions. Each team is responsible for

responding to the questions in the discussion forum. As others have noted, some (but not all) students who are reluctant to participate in class discussions are active participants in this online medium (DeBard and Guidera, 1999/2000). It is asynchronous so the students and the instructor can monitor and reflect on the discussions at times convenient to their own schedules, but discipline is required to do this in a timely and regular fashion.

William Ross (University of Wisconsin-LaCrosse) has experimented with having undergraduate labor relations students negotiate collective bargaining simulations via discussion forums as well as e-mail. With the discussion forum, some groups had separate threads for each bargaining item which worked well at first, but was more difficult when the negotiators started logrolling the issues towards the end. With e-mail negotiations, the students were able to negotiate against students from other universities, once with students at Cornell and another time with students at the University of Western Australia. Bargaining with students at other universities can create more of an us-versus-them attitude which may be more realistic for actual collective bargaining.

Fells (2000) describes the University of Wisconsin-LaCrosse – University of Western Australia e-mail negotiations in more detail and some interesting findings emerge. Each team had an appointed contact who was responsible for exchanging e-mail messages with the other contact and each team could choose its internal form of communication. All of the groups chose to meet face-to-face even though the instructor set-up a local area network for them to use online. After completion of the exercise, the students from both countries expressed feelings that the exercise was competitive. There were no "social" e-mail messages exchanged in advance and it would be interesting to experiment with having some groups send social messages before negotiating to gauge whether this reduces competitiveness. Lastly, while text-based

conversations can be cumbersome, they result in a written record which allows the instructor and students to evaluate and reflect on the exercise. For a negotiating exercise, the instructor can show the students how the nature of the exchanges changes as the bargaining process unfolds.

The other major form of electronic communication that receives a lot of attention in discussions of electronic pedagogy is chat. The major advantage and disadvantage of chat rooms is that it is synchronous. This is an advantage in that it feels more like a classroom conversation because the students and instructor can interact in real time. This is a disadvantage since the text-based nature of the exchange makes it cumbersome to manage with more than a handful of simultaneous participants.

While my use of The Zinnia collective bargaining simulation described above has relied on face-to-face negotiating sessions, one group agreed to try negotiating in a chat room. As with the other technological tools, this involved some additional logistical details. We had an additional training session so that everyone could experience the technology. At a later date when the groups were scheduled to bargain, one student had Internet connection and browser difficulties and thus joined the negotiations an hour late. There was a union team and a management team so there was one chat room for everyone to join to negotiate back and forth. Additionally, each individual member was at a different location so we set up two intraorganizational bargaining chat rooms – one for internal discussions within each team.

Once the students got used to this arrangement, it worked reasonably well.[9] Students appreciated

[9]The use of multiple chat windows caused one technological issue. A message appearing in one chat room caused that room to become the active window. Thus, if someone was composing a message in the private chat room, a message appearing in the open chat room would switch their cursor to that window. If the student was looking at the keyboard instead of the screen, they would not notice this switch and the end of their message would be inadvertently sent to the wrong room.

not having to travel to campus. More substantively, it was easy for each team to caucus within their own group without having to physically leave the room and interrupt the flow of negotiations. The lack of face-to-face interaction and the loss of nonverbal clues appears to have been a mixed blessing. On the positive side, aggressive or confrontational nonverbal clues were not seen and therefore the students reported being able to concentrate more on the issues. On the negative side, the loss of nonverbal clues made it easier to maintain a poker face and therefore made it more tempting for the groups to try to deceive the other side.

From the instructor's perspective, the chat rooms generate a log file so I have a record of what was said which could be used for evaluation and reflection as described above. Also, since I knew when they were negotiating, I also benefitted from the convenience and was able to check on how things were going from a remote location. In the final analysis, however, the entire group met face-to-face to wrap up their negotiations because they found it cumbersome and slow to type all of their correspondence. If an instructor wants to rely on remote communication for an exercise such as this one, the exercise should be less complex than the face-to-face version to make up for the extra effort of communication. As technology develops and as bandwidth increases, video conferencing via the Internet can potentially solve many of the problems with chat, but this is unrealistic today on anything but a very limited basis.

Groupware software can also be employed to foster student collaboration (Greenlaw, 1999; Manning and Riordan, 2000). Groupware has the potential to go beyond chat rooms and discussion forums in that this software contains tools for structuring and improving decision making within small groups. As an example outside of labor relations, Manning and Riordan (2000) describe how a team meeting agenda tool, which includes brainstorming, organizing, and voting functions, was used by student groups to complete a macroeconomics course project. All of these functions were completed electronically with

students accessing the groupware via a campus computer network at their own convenience. This is an interesting example of using new technology to establish a learning community and enhance a traditional, face-to-face course.

V. *Online Courses*

Regardless of whether a course is Web-enhanced or Web-based, there are a number of common issues. The technological tools, prescriptive advice of Web design (avoiding too many graphics, presenting text in small chunks, etc.), and underlying theories of learning are all the same in both contexts. However, by removing face-to-face meetings, instructors of online courses are confronted with an additional set of unique challenges. One, how is content delivered? Two, how much instructor-student interaction will there be and how will this be achieved? Three, will there be any collaboration among students who may never meet face to face?

While I will speculate that more instructors have experimented with enhancing traditional face-to-face courses, the possibility of online courses has dominated discussions in many circles. To date, however, I am not aware of many for-credit online courses in labor relations.[10] Cornell University (*www.ilr.cornell.edu/albanylaborstudies*) has marketed two online undergraduate courses, Arbitration and Contemporary Labor Issues, though the latter has not been delivered due to insufficient enrollment. Both courses use the platform Blackboard to manage the course and follow a similar format: weekly assigned readings (offline from textbooks and handouts) with weekly chat sessions. In the Arbitration course, the chat sessions last for one hour. These sessions are used by the instructor to clarify any student

[10]I welcome notification of other online labor relations courses. If you know of any, please e-mail me at *jbudd@csom.umn.edu* and I will add them to a list on my Web site (*www.laborrelations.cc/tech/*).

questions and to discuss the end-of-chapter questions from the textbook. The instructor reported that this was manageable because there were only five students in the class, but he had significant reservations about the effectiveness of the chat sessions if there were even just 10 students (Bruce Feldacker, private correspondence).

There are also online courses being offered in closely related fields. Capella University (*www.capellauniversity.edu*), for example, offers a human resources management course and a conflict management course. Capella University courses involve assigned readings from a textbook, weekly discussion forum postings, and other graded exercises such as projects or case studies. Christopher Newport University offers economics classes with a similar format (Vachris, 1999).

Various organizations are offering Web-based, non-credit courses and training sessions in the area of labor relations. In the mid-1990s, the Canadian Union of Public Employees and Athabasca University offered "Introduction to Labour Studies" via the Internet. This course consisted of offline textbook readings, several written assignments, and mandatory discussion forum participation – including taking turns as the discussion leader (Taylor, 1996). Later offerings included a series of non-credit labor education workshops via the Web and Athabasca University is currently working with the Canadian Labour Congress to develop Web-based labor education for the Canadian labor movement (Taylor, forthcoming; Briton and Taylor, 2001).

Some U.S. unions have put steward training materials online. For example, Cornell hosts a Paper, Allied-Industrial, Chemical and Energy Workers International Union (PACE) steward training course (*www.ilr.cornell.edu/pace/*), but this is simply a scanned version of a 122-page printed self-study manual. Similarly, the Washington State Association of Letter Carriers (*www.wsalc.com*) offers online contract

interpretation "training" which is a series of true/false questions based on their contract provisions. Using javascript, the correct answer is revealed when the user places the mouse over the answer box. A more detailed answer sheet can be printed out. Neither this nor the PACE materials involve any interaction among learners or with an instructor.

In Europe, the European Trade Union Distance Education (ETUDE) project has worked with national union organizations in Italy, Germany, Sweden, and Great Britain to develop and offer Web-based labor education modules (Creanor and Walker, 2000). This initiative has included a training course to train trainers in Web-based training in Italy, a online course on European Union institutions for union stewards in Sweden, and an online course for health and safety representatives of UNISON – Great Britain's largest union (ETUDE, n.d.). These courses seem to follow a similar format: an introductory face-to-face session of 1-4 days, several months of online learning, and a concluding face-to-face session. Note that compared to wholly Web-based courses, the initial face-to-face sessions provide the opportunity to provide introductions to the course material and to the technology in a traditional setting that the participants may find more comfortable (and that the instructors may find more efficient). Probably just as importantly, the initial face-to-face sessions provide the participants with an opportunity to interact with others in the course before interacting via the Internet.

With these examples as a backdrop, consider more generally the options for delivering an online course. A central question that each instructor must tackle is how is content delivered? One option is to use the Web to deliver online lectures. This may involve text-based Web pages, PowerPoint presentations, or online audio or video. Instructors must realize, however, that there are clear problems with holding student interest. Some studies claim that most Web users scan text instead of reading it (Berry, 2000;

Palloff and Pratt, 2001). And if one considers using the Web's video capabilities to deliver a lecture, remember that a video of someone talking is the least interesting application of this medium (Hampe, 1999). With some added expense and planning, it is possible to deliver streaming video with accompanying visual supports. It is also reasonable to question whether this makes sense for both technological and pedagogical reasons except in specific, limited instances. In particular, note that all of these options do not involve any interaction with an instructor.

Video conferencing would make it possible to deliver something closer to a traditional classroom lecture with interaction between the instructor and students, but currently this is not technically feasible except at great expense. As an alternative, however, HorizonLive (*www.horizonlive.com*) provides software that combines a presentation with chat. To your desktop, a speaker can make a live audio presentation with accompanying visual slides on the computer screen and with an active chat session. The presenter can ask for questions; participants can pose questions in the chat room; and the presenter can respond live via the streaming audio feed. There is also a yes/no polling feature so the presenter can ask a yes/no question and each participant can click their answer and see the tabulations. In the workshop I "attended," there were approximately 30 attendees, but the chat was dominated by five or so. The interactive feature worked reasonably well, but some chat room participants did chat about things that were somewhat off topic which was distracting. I would not want to earn an entire degree in this manner, but it was stimulating and effective for a 45 minute presentation.[11] This type of Web application might be a

[11]There was also a static picture in one corner of the screen so I could visualize the presenter. I also have to confess that I checked my e-mail in the middle of the presentation, but since the connection was maintained I could still listen to the audio and follow the presentation. Depending on one's perspective, this is either a good or a bad thing.

possibility for delivering lectures online.

On the other hand, many emphasize using the Web to provide interactivity and reflection rather than lecture material (Beer, 2000; Fisher, 2000; Oliver and Herrington, 2000; Palloff and Pratt, 2001). In this model, content is delivered offline through readings and the Internet is used for exploration, collaboration, and discussion. This argument is very compelling, but there are problems with finding appropriate readings to deliver basic content. Note further that it is possible to design self-paced online courses in which students can progress on their own timetable, either through offline readings or online lectures. This removes the possibility for online interaction and collaboration and it is hard to see how this is anything more than a traditional correspondence course.

This emphasis on interaction and reflection raises another critical question for online courses: How is the Internet used for promoting interaction, collaboration, and reflection? The online labor relations courses and training programs described above and the technological enhancements described in the previous section provide various options, especially using chat rooms, discussion forums, and groupware. As discussed below, many argue that these interactive tools should be the central features of online courses.

Another example of using the Internet for interaction is using electronic whiteboards to create Mind Maps which are a form of an outline with ideas and pictures radiating out from a central concept (Buzan and Buzan, 1993) and are therefore drawn rather than typed. In my labor relations course I have two in-class exercises in which small groups of students make Mind Maps (Budd, 2001). One Mind Map is to capture the bargaining environment for a specific contract negotiation and the other is to outline different effects of labor unions. This has worked well as an in-class exercise with the groups creating their Mind Maps on large sheets of paper. However, WebCT and some of the other course-management platforms

have interactive whiteboards so that it would be possible to conduct this exercise online with students drawing on a computer screen from remote locations. I have not tried this in an online environment, but this, and other possible uses of electronic whiteboards, is something with which online courses could experiment.

A significant challenge of Web-based courses is establishing a culture of participation and interaction among individuals who have not had any personal contact. While there are technological tools to support this, online instructors should not underestimate the amount of time, especially in the beginning of each course, that needs to be devoted towards social, administrative, and technical troubleshooting matters (Fisher, 2000; Palloff and Pratt, 1999, 2001). In the words of Palloff and Pratt (2001, p. 26), "when the only connection we have to our students is through words on a screen, we must pay attention to many issues that we take for granted in the face-to-face classroom." Moreover, motivation for participation can be especially challenging in non-credit courses (Briton and Taylor, 2001).

VI. *Learning Theories and Pedagogical Issues*

While the use of technology in education and training, especially in Web-based courses, has some key drawbacks, many herald the dynamic possibilities of using information technology in instruction. The previous sections have outlined how various technological tools can be used, but to better understand the positive and negative aspects, it's important to think carefully about how individuals learn. Only with this foundation can instructors effectively incorporate technology into Web-enhanced or Web-based courses.

The body of knowledge on learning theory and instructional theory is not easy to categorize, but three major theories are generally apparent: behaviorism, cognitivism, and constructivism (Cooper, 1993; Driscoll, 2000; Ertmer and Newby, 1993). Behaviorism focuses on individual responses to a stimulus and

on using different reinforcements to reward and punish behavior to bring about behavior modification. In this framework, learning is one type of behavior modification and educators use reinforcers to teach via rewarding correct answers. While behaviorists advocate specific instructional methods such as programmed instruction and mastery learning, the overall orientation is consistent with traditional instructor-centered learning – the familiar "sage on the stage" (Palloff and Pratt, 2001, p. 108) or expert faculty member who lectures to a passive audience via "chalk and talk" (Becker and Watts, 1998).

In behaviorism, the environment is key and the individual's mind is a black box – no attention is paid to how information is processed (Driscoll, 2000). In a movement away from behaviorism, cognitivism focuses on what goes on inside the black box: the cognitive processing of information. While the literature in this area is diverse, a common underlying theme is that memory, and therefore learning, depends on connecting information to previous knowledge and on the learner being actively involved.

While cognitivism incorporates information processing into learning and instructional design, it is similar to behaviorism in that both theories view knowledge as objective. In other words, "knowledge is thought to exist independently of learners, and learning consists of transferring that knowledge from outside to within the learner" (Driscoll, 2000, p. 376). In contrast, the most recent theory to emerge, constructivism, assumes that knowledge is constructed by individuals from their own experiences. This is similar to cognitivism in that constructivism focuses on cognitive activity, but in constructivism, "humans *create* meaning as opposed to *acquiring* it" (Ertmer and Newby, 1993, p. 62, emphasis in original). Constructivists promote the use of collaboration, multiple perspectives, and learner ownership.

While there has been a proliferation of how-to manuals for putting course materials online (e.g., Alden, 1998), ultimately it is critical to construct instructional methods that have a basis in theory (Miller

and Miller, 2000). These theories yield very different instructional design strategies for different learning objectives. Behaviorist methods are effective for basic learning pertaining to discrimination, generalization, and association, but not for higher level critical thinking skills (Ertmer and Newby, 1993). To the use the Web, or other types of technology, as a static source of information in which students, isolated from other students, read some text and then take an online quiz is a form of programmed instruction in the behaviorist tradition (Smith-Gratto, 2000). This may be effective for basic learning, but not for more advanced knowledge construction.

In fact, the key to effective and meaningful Web-based instruction is widely argued to be taking advantage of the Internet's capacity for exploration, interaction, and collaboration on real-life problems (Beer, 2000; Hannafin and Land, 2000; Leflore, 2000; Oliver and Herrington, 2000; Palloff and Pratt, 1999, 2001; Spector and Davidsen, 2000). From a cognitivist approach, chat rooms and threaded discussion forums can be used to have students discuss and refine a particular concept which can serve to make the learner an active participant and to connect the material to the student's previous knowledge (Leflore, 2000; Miller and Miller, 2000).

But the dominant theoretical base for technologically-based educational tools is constructivism. In fact, the hypertext structure of the Internet in which students can explore various links in their own personal ways is argued to be constructivist in nature because it allows learners to create their own understanding (Miller and Miller, 2000). Moreover, to the extent that collaboration and interaction are fundamental to learning in constructivism, synchronous and asynchronous communication tools are central to efforts to incorporate technology into education (Miller and Miller, 2000; Palloff and Pratt, 2001; Smith-Gratto, 2000). As a specific example, to facilitate the student's active construction of knowledge, the Web

can be used to deliver a problem-based learning environment in which groups of students solve weekly problems, post their solutions, and evaluate the solutions posted by other groups (Oliver and Herrington, 2000; Spector and Davidsen, 2000).

Using the Web as a multimedia source of exploration, interaction, and collaboration is also consistent with the more general calls for the use of varied instructional methods and materials (Ross and Schulz, 1999). There is substantial research on individual differences in learning styles across four dimensions, personality, information processing, social interaction, and instructional methods (Claxton and Murrell, 1987) which imply the need to use diverse teaching methods to reach learners with different strengths. Moreover, varying the nature of instructional materials for a single individual has biological, cognitive, and motivational underpinnings (Driscoll, 2000). But to accomplish this goal, information technology needs to be used in diverse ways within a single course or training program.

Lastly, information technology can be used to support Chickering and Gamson's (1987) seven principles of good teaching practices (Chickering and Ehrmann, 1996; Chizmar and Walbert, 1999; DeBard and Guidera, 1999/2000). The various forms of electronic communication discussed herein can encourage contacts between students and faculty (principle 1) and develop reciprocity and cooperation among students (principle 2). Groupware software can also be employed to foster student collaboration. Using the Internet for active learning, whether through exploration of primary source materials, a Web-based problem-solving simulation, groupware, or electronic conversations, can support principle number 3 (use of active learning). And as described in the previous paragraph, information technology can respect diverse talents and ways of learning (principle 7).

The other three principles are giving prompt feedback, emphasizing time on task, and

communicating high expectations. Immediate feedback via online quizzes and posting messages in threaded discussion groups can enhance feedback. To the extent that the Internet allows both synchronous and asynchronous interaction from remote locations, time on task may be improved because commuting is unnecessary (Chickering and Ehrmann, 1996). Moreover, the well-managed use of information technology, for example through an online exhibit or a CD-ROM of arbitration cases, can provide significant time on task benefits. Asynchronous communication can also promote high expectations in that this technology allows greater time for reflection (DeBard and Guidera, 1999/2000). If student projects are posted on the Web for their classmates to read, as in my NLRB brief, this public aspect can also promote high expectations.

Effective teaching principles, supported by the dominant learning theories of cognitivism and constructivism, therefore imply that instructors view technology as a tool for increasing active and collaborative learning with diverse materials, not as a new method for delivering lectures. The exciting labor relations examples discussed in the previous sections – whether exploring union Web sites, using a discussion forum to reflect upon NLRB decisions, reacting to thought-provoking audio clips, or negotiating via chat rooms or e-mail – are not electronic lectures. They are ways for using technology to support active learning.

VII. *Concluding Thoughts*

Using technology to create Web-enhanced or Web-based courses involves significant challenges. One challenge is that faculty and other developers of online courses and materials must not overlook issues of

intellectual property rights.[12] Part of this issue involves respecting ownership rights when using copyrighted materials, but this also involves questions of who owns the intellectual property of materials created by the course instructor/developer (Hawke, 2001). In the case of faculty, traditional course materials are generally the property of the faculty developer, but since putting a course on the Web involves university resources, such as computer and design consultants, above and beyond those traditionally provided to faculty, the university may have ownership rights (Hawke, 2001). Faculty should explicitly consider this issue prior to significant course development, and the American Association of University Professors materials on distance education and intellectual property issues (*www.aaup.org/distnced.htm*) are a good resource.

Other challenges are logistical and technological – locating networked classrooms to deliver online exams, learning how to use specific tools effectively, bandwidth limitations, browser problems, dealing with broken Web links, and so forth. Still other challenges are related to instruction: finding time to develop and manage the use of technology, directing students' appropriate and beneficial use of information on the Internet, and facilitating meaningful interaction between the instructor and students, and among students, without any face-to-face interaction.

Differences among educators and students are also a significant challenge. Students with some learning styles and personalities may be well served by an asynchronous Web-based course while others may flounder. In some cases there is also a generation gap between faculty who are not as comfortable and proficient as their students with using new technology. Even instructors who do not incorporate

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[12]Hawke (2001) also discusses the important legal considerations pertaining to privacy and free speech.

technology into the design of their courses need to be prepared to manage the learning of students who use the Internet outside of the classroom to empower their learning.[13]

But there are also significant opportunities of using information technology in education and training. University administrators (and public policy makers) envision Web-based courses being able to increasing enrollment (revenue) without needing to attract students to a specific physical location. Corporate trainers see the possibility of Web-based training reducing the travel and work-disruption costs of gathering employees in specific physical locations.[14] But the truly exciting opportunities of using information technology in education and training are the opportunities to foster active and collaborative learning and to provide access to an incredibly rich universe of information.

Hopefully as instructors, students, and support staff become more familiar with technology and as its adoption becomes more common, the logistical and technological costs will lessen and professors, teachers, and trainers, can focus more on the pedagogical opportunities. In the meantime, it's critical not to let the tail wag the dog: learning objectives must determine the technology used, not the reverse. And effective teaching using information technology is likely rooted in the same principles as effective teaching in traditional face-to-face courses: active learning and collaboration using a diversity of materials. As such, instructors should view technology not as a vehicle for delivering lectures, but as an opportunity for creating active and collaborative learning.

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[13]Managing fully wired classrooms in which each student uses a computer with Internet access during class meetings can also be a challenge. Stories of MBA students trading stocks online during classes abound. Daphne Taras suggested a book during the middle of a lecture in a wired classroom and someone responded a few minutes later that the reviews on Amazon.com say the book is boring.

[14]This is an area that labor unions should explore for increasing the reach of their membership and leadership training programs – without ignoring principles of effective instruction.

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