Teaching and Learning with Technology at the Rochester Institute of Technology

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Abstract:

The Rochester Institute of Technology (RIT) is a private 4-year college in upstate New York with approximately 15,000 students (http://www.rit.edu/facts.html). RIT is comprised of eight colleges and is focused on providing technical and professional career training. As the demand for workers with these skills has grown, so has RIT. Distance learning at RIT started in earnest in 1979 with telecourses. The goal then as it is now is to make learning more accessible to students. In the mid-1980's we began incorporating email and online discussion boards into telecourses. By 1991, RIT had started completely online distance learning programs and courses. In 2002, RIT brought online learning technologies and pedagogy into the mainstream of campus.

I. Background Information

A. Distance Learning History

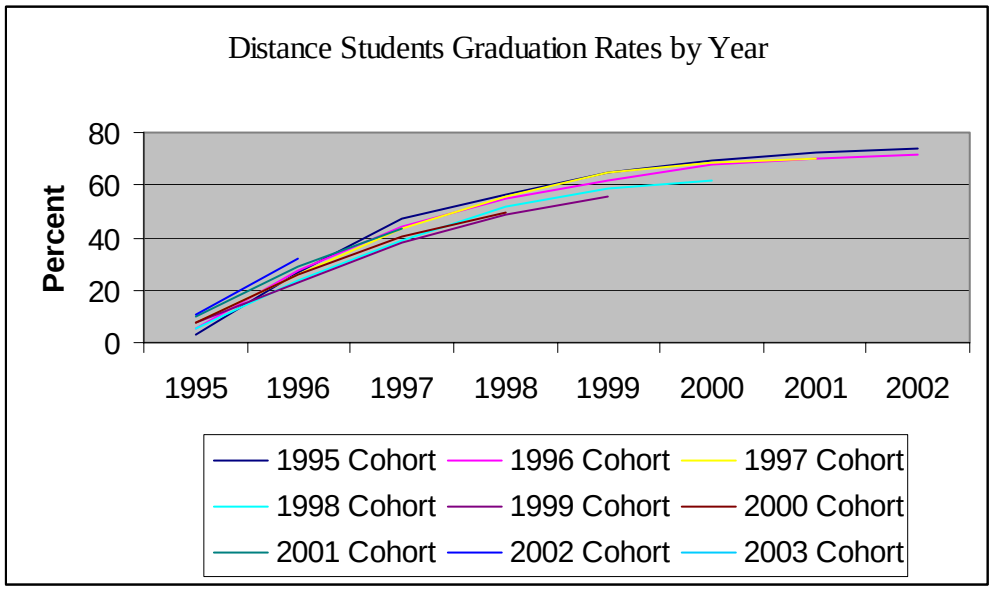
The pedagogical foundations of RIT's online learning practices have been informed by the seminal article "Seven Principles for Good Practice in Undergraduate Education" published in the American Association for Higher Education (AAHE) Bulletin in March 1987. The two basic but constant pedagogical principles in training faculty to teach online are promoting active learning strategies and more interaction both faculty to student and student to student. These pedagogical foundations are achieved through numerous instructional strategies. RIT's distance learning programs have differed from mainly asynchronous (text-based) courses by offering faculty the ability to supplement text-based courses with media. Media support ranges from video to CD-ROMs to streaming media. RIT has not invested heavily in synchronous interactive technologies and has focused on asynchronous learning as a more comprehensive and many times, more effective approach for distance learning and on-campus technology enhanced learning.

In addition to media development and support, RIT has been a leader in providing the highest accessibility guidelines. RIT is unique in having the National Technical Institute for the Deaf on campus as one of its eight colleges. As a result of the NTID presence, a small percent of our online learners are deaf or hard of hearing. RIT has developed some important policies to support these students and created media solutions beyond basic captioning. We believe strongly that anything we do for these students also helps our hearing students. To round out the online instructional paradigms used at RIT, RIT provides extensive online student services to students taking online courses. The success of the program can be measured in its high retention rates and graduation rates: more than 95% have successfully completed courses for more than seven years; of those that are enrolled and matriculated into a distance program less than 10% leave after the first year; and, more than 72% successfully graduate from fully online programs, see charts below for data.

Table 1. First year Attrition rates of Online Distance Students

First-year Attrition Rates	
Cohort	% Leaving After Year One
1995	9.56
1996	13.27
1997	8.45
1998	9.17
1999	11.58
2000	11.03
2001	7.93
2002	6.06
Average	9.63

Chart 1. Graduation Rates by Cohort Year of Distance Students



B. Integrating Online Instruction into Campus Courses

Due in part to the success of our distance learning program and in part to RIT's new mission to infuse technology into all courses on campus, in 2002, the Provost appointed Online Learning to lead the institute on the infusion and integration of online instruction into campus courses. RIT is not alone in this respect. The work undertaken by Carol Twigg and the Center for Academic Transformation utilizing pedagogically rich technology while increasing student success demonstrates the effort seen by many forward thinkers that online technologies hold considerable promise for the classroom.

In 2003, after first providing the campus with a courseware management system, RIT Online Learning initiated a blended learning pilot that combines the best practices of our distance learning program with the best of the face-to-face classroom using the myCourses system to support online activities. Survey evidence show students like the option and convenience of blended courses, like the additional strategies and resources used by professors and believe they are getting both a higher quality and higher quantity of interaction with their fellow students.

As online instructional strategies spread to more courses, teaching and learning should improve. Distinguished professor, Mark Kassop of Bergen Community College of New Jersey has written a compelling article regarding the advantages of online learning. The evidence seems clear from distance courses that the use of online asynchronous interaction can promote a more level playing field among students, create a stronger learning community, allow students time to be reflective with their comments, and improve writing skills.

While the current use of technology is effective for online learning, most educational institutions have yet to optimize technology in teaching and learning. As put forth by Chris Dede, Chair of the Learning and Teaching Department of the Harvard Graduate School of Education, the future of education is the use of technology to transform education, not simply amplify it as it currently does. RIT will be looking forward to those advancements in the effective use of instructional technology to help the next generations of learners.

II. Creating a Model Distance Learning Approach at RIT

From its earliest days, the distance learning office at RIT chooses to guide faculty through best practices rather than a cookie cutter model. In 1991, when RIT received a grant from the Anneberg Foundation for New Pathways to a Degree, the office of distance learning focused on building a comprehensive distance learning program. The RIT distance learning model focused on faculty coaching and development and student support. RIT's support for students includes online registration, library services, orientation, technical support and general support(Geith, 2001). Providing distance students with the support they need to be successful is an ongoing mission for the department. While online student services are a critical part of what RIT's distance learning office offers, the remainder of this paper will detail the support for faculty teaching online courses. The support for RIT distance learning faculty starts with course design then moves to creation of a clear syllabus and then moves to an emphasis of using online active learning techniques.

A. The Distance Foundation: Seven Principles

RIT partnered with the TLT Group who was at the time aligned with the American Association of Higher Education to help evaluate the grant. The TLT Group introduced the distance learning office to the seminal article, Seven Principles for Good Practice in Undergraduate Education by Charles Chickering (1987). The "seven principles" are a well known summary of what decades of educational research indicates are the kinds of teaching/learning activities most likely to improve learning outcomes.

Table 2. Seven principles and online pedagogy teaching methods

Seven Principles:	**Examples of Effective RIT Online "Good Practice" Pedagogy**
1. Encourages contact between students and faculty	Use of discussion boards—for topics, general Q & A, student to student interaction
2. Develops reciprocity and cooperation among students	Setting up online team projects
3. Encourages active learning	Required online participation establishes reflective thinking and is writing intensive
4. Gives prompt feedback	Faculty encouraged to respond to emails in 24 hours, quizzes in one to two days and papers/projects within a week
5. Emphasizes time on task	Model syllabus helps students figure out the time it will take to do activities
6. Communicates high expectations	Model syllabus spells out expectations and grading rubrics for students
7. Respects diverse talents and ways of learning.	Online learning levels the playing field so more discussion is encouraged while also supporting media and textbook supplements

Source: TLT Group and RIT Online Learning

B. A Closer Look at RIT Faculty Support Tools: PRPA Model and Syllabus

With the foundation built to support effective online practices, RIT distance learning started to build virtual classrooms for students. As RIT offered more distance learning courses, it became clear that students in online environments lack certain visual cues and reassurances which exist in the typical classroom. To give students the right clues it is critical for faculty to provide a clear idea of what will happen in the online classroom. The role of Online Learning instructional designers is to assist faculty in creating or transforming their course to an online format. Resources such as the online design model using four basic elements--Performance Outcomes, Resources, Practice Activities, and Assessment (PRPA)—are employed to assure all objectives are addressed. When a faculty member meets with an Instructional Designer to discuss the course, strategies which will integrate the seven principles into the course are addressed. The course structure and current teaching practices are reviewed, the performance outcomes for the course are decided upon and course content resources and delivery methods determined. The instructional designer works with the faculty to choose student practice activities and plan active interactions between students, faculty to student, and student with the content. The assessment methods chosen allow both students and faculty to know when the course's performance outcomes have been met.

Next the instructional designers coach faculty to write down their student expectations in a clear manner. The syllabus and calendar should present a complete map of the course and indicate planned learning outcomes, student practice and how mastery will be assessed. The course syllabus is checked against Online Learning's model to ensure that no important categories of information have been left out. The following information should be included in the online syllabus: Learning Outcomes, Instructor Information, Assessment/Grading Policy, Contact Policy, Participation Policy, Course Description, Credit Hours, Prerequisites, Other Relevant Information, Course materials, Tech Support
Optional Materials, Library Support, Welcome/Getting Started, Academic Dishonesty Policy, Course Mechanics, and any ADA considerations. A complete list of what should be included under each category of information can be found on the webpage at
http://online.rit.edu/faculty/strategies/preparation/syllabus.doc

RIT Online Learning uses two CMS products—FirstClass and myCourses (Prometheus which is owned by Blackboard). The FirstClass tool is only available for distance learning courses while myCourses can be used for on-campus classes as well as distance learning. Online Learning's technical support department has worked with the instructional design staff to create a default template which encourages faculty to complete the desired syllabus information. Over time we have found that if you change the courseware interface; thereby providing the faculty with a template, faculty will complete the missing information rather than delete or change the courseware.

III. Effective ALN Pedagogy: Discussions and Collaboration

A. Discussions Promote Active Learning

Much of the newer literature on teaching encourages faculty to adopt an active learning environment (Bransford, 1999). Online discussion is a simple technical tool and fosters active learning. While asynchronous discussion boards are relatively simple to create, and possess potentially enormous advantages over live discussion, they do not run on autopilot. To effectively lead or moderate online discussion is both an art and a science. The instructional design staff encourages faculty to think about the learning goals of the courses and choose appropriate methodologies to achieve those goals. Faculty can turn to the resources on the webpage or in the faculty reference guide they are provided. Some of the various instructional techniques faculty can achieve through the use of discussion boards include: current topic discussion, case study, role playing activities, reflection on assigned readings, sharing of links and examples, journal entries, interviews with guest experts, forcing students to make learning personally relevant, and sharing roles of discussion facilitator and summarizer. Each of these strategies can be used singly or combined with other strategies.

Grading discussion can be difficult. Fortunately, the instructional design staff has found many examples from faculty who have created rubrics for grading discussion based on the learning goals for the class. For instance, if one of the learning goals is to show evidence of mastery of knowledge, requiring demonstration

of readings must be included in the discussion. Faculty can let students know how often they should post and what quantity of writing is expected for a graded post.

Table 3. Faculty Example of Discussion Grading

Specific, **point-based schema** can be used for selected discussions, just as in any written assignment, certain key elements (content, mechanics, style, and so on) are worth points, such as in the sample schema shown:

Points	Item Requirements
30	Content is thorough and well-explained.
20	New ideas, creativity or innovation are displayed.
20	Posts engage other students in discussion.
10	Writing is clear and concise.
10	Writing is free of errors.
5	Format enhances the content, providing greater explanatory power.
5	Sufficient number of credible sources cited or web links provided where necessary.

Source: Christine Sevilla, Instructor at RIT, 2003

B. Collaboration and Cooperation among Students

With online learning tools that are used in distance learning courses, it is very easy to create student teams and online areas where they can share and discuss information in small groups. The online student group tools alleviate some of the logistical problems of face to face teams (where to meet, when to meet, where are the necessary files) and permit students to collaborate asynchronously, anytime, anywhere. By assigning students to online groups, you can monitor their progress and intervene if the group or a particular member of a group needs attention. You won't be surprised at the end of the project when students suggest some members weren't cooperative, or some members did all they work, or the project went off on an unexpected tangent. In distance learning, students don't have many opportunities to meet and get to know other students. Cooperative learning activities give these students an opportunity to become more connected to the class, and to RIT, through the relationships they develop in small group activities.

An instructional design goal for any group activity should be to build strong group interdependence, the "one for all and all for one" camaraderie that encourages members to help each other work toward a common objective. This can be as simple as offering bonus points to a study group if everyone in the group scores above a certain minimum grade on an assignment, test, or individual paper. This will motivate the better prepared students to help and encourage the members who are most likely not going to meet the goal, and the less prepared students are likely to work harder so as not to disappoint the group.

Table 4. Collaborative Project Course Example

Deborah Coleman uses groups effectively in MyCourses. Students give enthusiastic praise for group work in her Information Technology distance courses:

> "Until I was in Prof. Coleman's class, I had not had a good experience in a DL group project. The projects in my previous courses were somewhat vague in their requirements; normally this is desirable in a "face-to-face" group project, but in a DL project it leads to more confusion and delay, as team members attempt to find agreement on the problem domain. What she did that the others did not was to give clear group project guidelines, as well as multiple deliverables of these projects (rather than one big deliverable at the end of the quarter.)" Student: Tony Jefferson

Professor Coleman establishes team folders for each group. A sample screen shows how group folders appear in MyCourses.

Table 4. Collaborative Project Course Example continued

IV. Building a More Accessible Online Classroom

Beyond the major tenets of good course design and effective online pedagogies, RIT distance learning is very concerned with making the online classroom accessible to all types of students. In the United States, the American Disabilities Act requires that educational institutions provide an equal access to all students. This legal statute was enhanced several years ago requiring that online learning environments be accessible to people with disabilities. RIT is unique in having the National Technical Institute for the Deaf (NTID) on campus as one of its eight colleges. NTID students have also taken courses at all the other colleges of RIT. The cross-registration of deaf students means that RIT is much more aware of what it takes to build an accessible (or deaf-friendly) course. Online Learning at RIT has been a leader in meeting the highest accessibility guidelines for deaf and hard of hearing faculty and students. On average 3% of RIT's distance enrollments annually are from deaf or hard of hearing students.

A. RIT Online ADA Compliance

Long before the Americans for Disability Act was enhanced, RIT had a strong commitment to equal access to education, due in large part to the presence of NTID. The fulfillment of this commitment includes the following: deaf or hard of hearing students attending courses in any of RIT's other colleges can utilize note takers in classrooms, interpreters for classes, tutors and advisors; there is a Disability Coordinator office and numerous workshops on deaf awareness as well as credit courses in sign language for students, faculty and staff. Each college at RIT has a liaison with NTID to ensure support for deaf students. A letter to faculty from the Provost is sent each fall reminding them of RIT's commitment to provide equal access to the deaf and a general awareness that any use of audio in the learning environment needs to be transcribed or closed captioned. (Note: Closed captioning is used for video based supplements only. If audio is used alone with out images it is only transcribed.)

Not only has Online Learning embraced the larger commitment to ADA principles, staff are continually inspired to provide access to quality instruction regardless of a person's disabilities. A story by Norm Combs, president of Equal Access to Software and Information (www.rit.edu/~easi) and Professor Emeritus at RIT illustrates why our commitment is so high. Professor Coombs often tells the story of his experience while teaching a distance learning history course. During their online chat, the student remarked that this was the first time he had ever had a one to one conversation with a professor. Professor questioned him as to why and the student stated he was deaf. In face to face classes he required the

assistance of an interpreter. He felt an overwhelming sense of empowerment and truly felt this technology had given him the opportunity to learn on his own. Norm told the student that it was also the first time he had ever had a conversation with a deaf student without the assistance of an interpreter. Norm Coombs explained to the student he is blind. Clearly, the distance learning classroom had made it possible for a direct faculty student conversation to occur between a deaf student and a blind faculty. (Coombs, 2003)

The Online Learning Department provides extensive support to maintain the same institutional commitment that is provided to campus-based courses. Online Learning pays for the cost of captioning any materials that contain audio components for distance learning materials. Costs will be discussed in more detail below. The Online Learning department provides support to assist with ADA compliance for faculty during course development and student support during the delivery of the course. The instructional design team makes faculty aware of RIT's captioning policies and academic policies for the virtual classroom. Faculty are encouraged to design materials and instructional activities which reflect RIT policies. Students are alerted to the fact that they can register for services, request reasonable accommodations for testing and proctoring and get support through a toll free TTY phone number. Students can find this information on the Online Learning website (http://online.rit.edu) and in print in the student handbook. Faculty are also notified if a deaf or hard of hearing person registers for their class.

As a result of RIT's commitments and sizable deaf populations, several studies on this population have been undertaken. The first was to gauge effectiveness of distance learning for deaf students and preference and value for instructional materials and activities (Long, 2003). Another survey was completed to gauge the effectiveness of CD-ROM tools created to enhance study options for deaf learners in distance classes.

B. Asynchronous Learning Works for Deaf Students

During the academic year of 2001- 2002, Professor James Mallory of NTID's Applied Computing program and Dr. Gary Long of the NTID Department of Research conducted a 35 item questionnaire to determine the effectiveness of distance learning for deaf learners. The number of student responses was 38. Critical demographic characteristics of the respondents indicated that 63% were deaf and 37% were hard of hearing and in addition 50% listed English as their first language, 45% said American Sign Language was their first language and 5% stated some other language was their first language. The students primarily enrolled in undergraduate courses (71%) while the remainder took graduate courses. Sixty percent were enrolled in applied science/computer science courses and the rest were enrolled in liberal arts or business courses. Seventy one percent had taken a distance learning course before. Even more students had experience with electronic conferencing, 82%. Eighty-three percent were expecting either an A or B in the course they were taking.

The survey asked questions about four different components of the course: testing and interaction, groupware conferences, instructional materials (web, textbook, professor's instructional resources and videotapes) and interaction and homework. In the first section students responded that the following were rated as important or very important to their overall learning: 50% feedback on tests; 29% live classroom discussions; 21% individual tutoring from teacher and 45% help from classmates. For questions on groupware conferences, 87% rated the comments by the instructor as important or very important for students' overall learning. Seventy four percent rated comments by other students as important or very important for overall learning.

Students gave high ratings to instructional materials: 63% rated textbook and materials developed by instructor as important or very important to students for their overall learning in the course, 53% for the reference book, 42% web text and graphic based explanation, 21% web-based streaming video and 29% videotape. For questions on homework, feedback and interactions students rated the following as very important or important to students for their overall learning in the course: 84% teacher's written explanation, 71% online comments by teacher and classmates, 37% live classroom discussions, 18% individual tutoring sessions with teacher and 34% from classmates or friends.

There is no doubt that deaf and hard of hearing students are satisfied with online asynchronous distance learning at RIT. In addition, the deaf and hard of hearing students wrote comments to describe why the distance learning format met their needs in open-ended questions. Students noted flexibility, an increased ease of communication (less barriers to learning), and a preference for the asynchronous nature of distance over campus based courses as most important. These findings, especially flexibility and asynchronous nature of distance, align well with some of the major findings from much larger studies with hearing students(Shea, 2001 and Trippe, 2001).

The value of the instructor's feedback to these learners has an overwhelming impact. There is no doubt that in any learning environment instructor feedback is essential (Chickering, 1987). For the online class however, the value of instructor feedback seems integral to success and more critical to students. Since instructor feedback occurs in two ways, online--one to one and one to many—students' often feel asynchronous learning is more student-centered. For deaf and hard of hearing students, who often require the assistance of interpreters with faculty in on campus courses, it is clear that they may value this opportunity to experience direct one to one communication with the instructor even more than a hearing student. From other surveys on distance learning, we know that instructor feedback is the most valued instructional component regardless of students' ability to hear.

One part of the survey that does require further investigation is the high level of overall learning attributed to comments from other students. Seventy four percent rated comments by other students as important or very important for students overall learning. In a traditional classroom communication between deaf and hearing learners is difficult and must be facilitated by an interpreter. With one interpreter and many students it is sometimes difficult to provide a free flowing discussion among students. The online classroom levels the playing field and allows them one to one interaction with other students. More in-depth investigation is necessary to determine whether students will continue to value other students' comments as highly as indicated above once ongoing access to other learners has been established. The question is if you have never experienced one to one interaction (without an interpreter) with other students but begin to have that access will that student interaction remain as valuable to your overall learning. While there is support from other surveys that student-to-student interaction is an important component of overall student satisfaction (Shea, 2001) it does vary. An unpublished study at RIT which had 253 students from 16 distance courses indicates that students learn less from other students than they do from projects and assignments which support active learning techniques (Yacci, 2003). The study does not suggest throwing out the student to student interaction; it simply states that students may indeed be learning more from active learning than discussions.

C. Designing for Learning Effectiveness

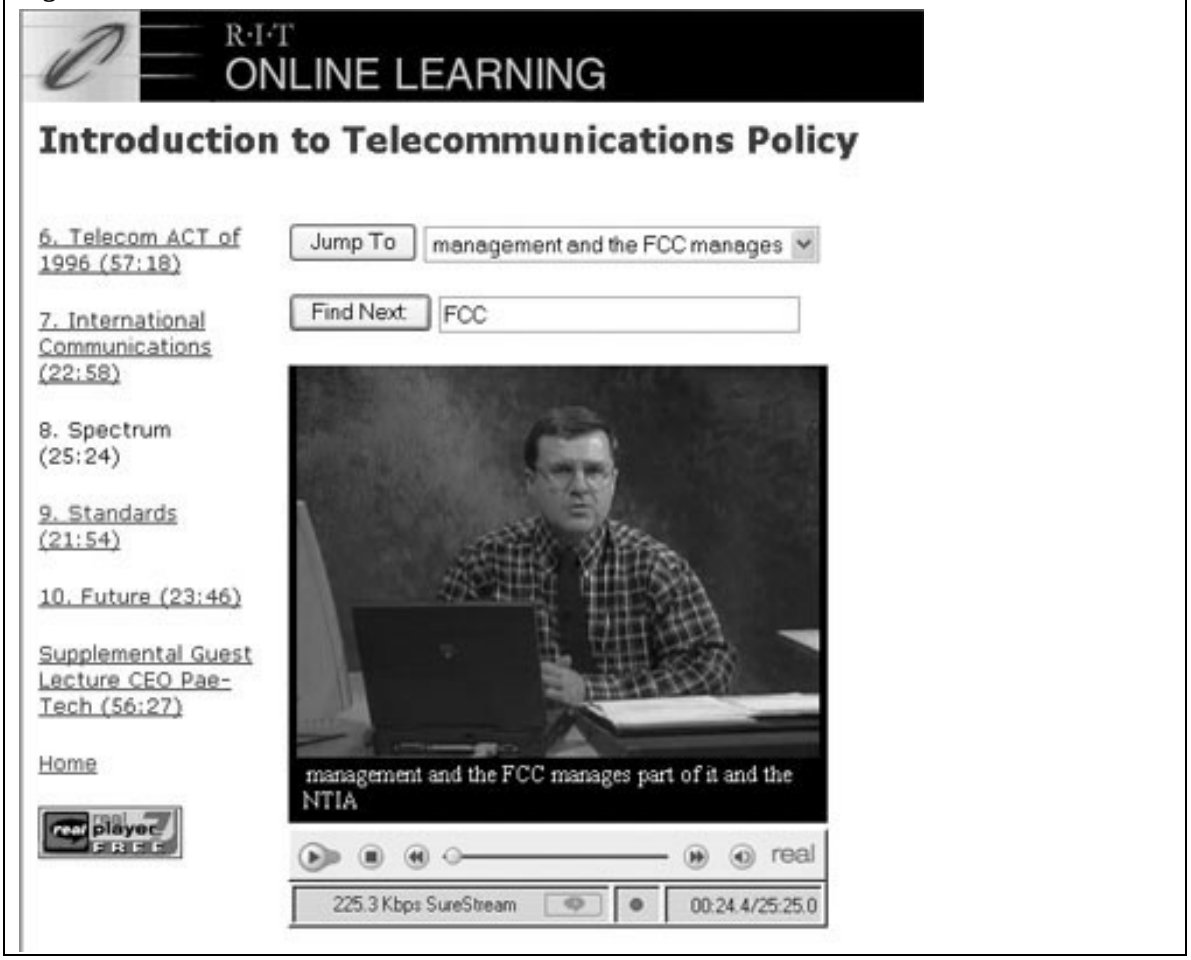
RIT has been in the business of distance education since 1979. RIT has been fortunate to have extensive multimedia production support. The support has made it easy for faculty to create video course materials for distance learners. Video course materials have come in the form of telecourses (cable tv), video tapes and now digital video. Currently, over 50% of all RIT distance courses supplement with some video in either digital or analog form. Any online course supplements that contain an audio component must be transcribed and closed captioned to fulfill RIT's commitment to the deaf. Another 10% use either CD-ROMs or streaming media. We expect the use of both CD-ROMs and streaming to replace video. Our unique environment, our clear commitment to equal access and our continual commitment to create multimedia which best meets the demands of a constantly changing learning environment created an opportunity to think out of the box.

We piloted the searchable text function on two courses that use CD-ROMS last year. On the current CD-ROM we produce, students can watch previously captioned videotape lectures. Text searches of the lecture can be done in two ways: first, a line-by-line search and second, through a keyword search. A student can view the video portion of the CD-ROM and read the captioning. Or, if the student wants to stop and think about what the professor has said on video, he can immediately go back over text, line by line to synthesize material as many times as needed. In addition, students can also employ a keyword search. The student can use the search tool for studying as well. The student can place the term in a search box and find the desired

term where it was used in the text.

RIT faculty are becoming more sophisticated at producing their own multi-media. They are producing audio enhanced PowerPoint (also called annotated PowerPoint) lectures and placing lectures on the web as streaming media. At RIT even these faculty-produced materials are captioned. To accomplish this task, the audio needs to be transcribed. The next step is to synchronize the transcribed text to the audio. This has to be done manually, but it is a very simple process. The "time-referencer" uses the Sync Captioning link to listen to the Real media, and using Javascript, enters the appropriate timecodes by using the down arrow key. Then, the raw text and the timecodes are merged into a RealText file. While this is an additional and costly expense, we take advantage of the captioning once again by making it searchable. Below is a screenshot of the CD-ROM as the student would see it.

Figure 1. Searchable CD-ROM



Source: Ron Fulle, Professor at RIT

The Online Learning department has noticed additional student and teaching benefits from having searchable closed captioning for other distance learners. The number of deaf enrollments in RIT distance courses averages about 3%. Thirty percent of the distance students indicate that they use the closed captioning, so obviously many more students are taking advantage of the closed captioning. Even more impressive is that over 50% of the students indicate they use the search features that result from having closed captioning. From an ADA policy standpoint, Online Learning at RIT knows making the closed captioning available is the right thing to do to serve our deaf and hard of hearing students but it is clear that it also benefits many other students.

D. NTID Model Spreads To Japan

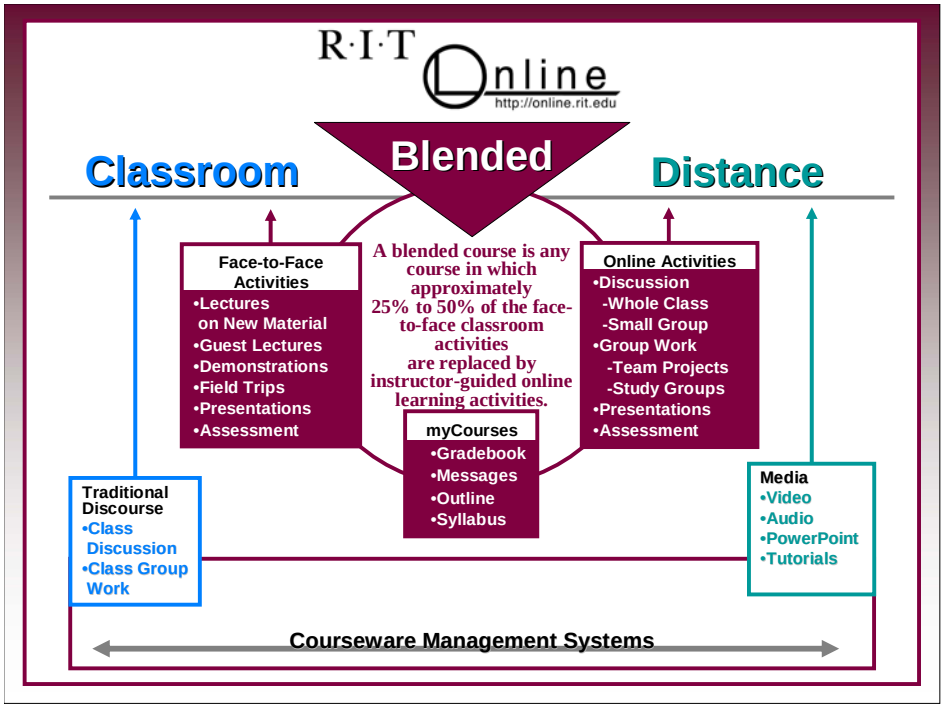
The National Technical Institute for the Deaf located on the RIT campus has partnered with Tsukuba College of Technology in Japan to develop a cooperative network of postsecondary institutions to promote educating deaf and hard of hearing students with innovative technologies. The Tsukaba College of Technology for deaf and visually impaired people started in Japan in 1990. Tsukaba College was modeled after NTID and was the first school of its type in all of Asia. In a very short time it has become a leader in this field. The network will build on sister institution relationships NTID has built over the years to help improve technical and professional education for the deaf and hard of hearing. The grant supporting the development and expansion of this network of educational institutions is funded by the Nippon Foundation which was established in 1962. At this point there are no distance learning courses planned.

V. Mainstreaming Technologies to Campus Online

In 2002, under a directive from the Provost of RIT, the Online Learning Department commenced offering new technologies and services to encourage campus-based faculty to use a greater number and a wider range of instructional strategies. In the United States many colleges were beginning to explore the use of online technologies to enhance the teaching and learning environment. Most institutions envisioned a future where technology was distributed across many different delivery modalities(Hitt, 2002). It was only natural for Online Learning to assume this broader role, as the Department has a long and successful history of working with faculty to design, develop, and teach distance learning courses. The introduction of blended learning by the department simply extends these services to faculty teaching campus courses. As an added benefit, blended learning leverages the full capacity of myCourses, the courseware management system that is currently associated with every RIT course.

The department developed a Blended instructional model during the spring and summer of 2003. As illustrated in the figure below, our instructional model defines a Blended course as any course in which approximately 25% to 50% of classroom lectures and other seat time are replaced by instructor-guided online learning activities, such as online quizzes, virtual team projects, synchronous chat sessions, and asynchronous discussions. The model shows how the best practices of distance learning can be combined with the best practices of classroom learning. Early results from the blended pilot suggest that our instructional model is indeed a sound one.

Figure 2. Blended Learning Instructional Model



Recognizing the potential to improve teaching and learning and willing to build on the 25 years of experience in distance learning (13 years experience of online asynchronous learning), RIT's Online Learning Department initiated a Blended Learning Pilot Project in fall 2003 after an extensive six-month research survey. In its first year, the Blended Pilot included 26 courses taught by 25 faculty members; approximately 550 students were enrolled in these courses. All courses used the myCourses course management system. Major findings include the following:

1. Nearly 75% of all students in the pilot indicate they like the Blended Learning format and feel just as strongly that other students should be able to take a Blended course.
2. Course completion is excellent—less than 5% withdrew or failed the courses.
3. Students perceive they have both a greater amount of interaction and a greater quality of interaction with other students.
4. Survey comments reveal that students were excited by the relatively large number of instructional strategies used in Blended courses.
5. Faculty participants say they are energized, even renewed, by the creative process of redesigning and teaching their courses in a new format.
6. Students would like to know ahead of time that a course is being offered as a Blended course.

In sum, findings from the 2003-2004 Blended Pilot strongly suggest that Blended Learning is a viable alternative delivery method for the majority of RIT courses. In supporting the Blended Pilot, RIT remains both a national leader in the effective use of technology for teaching and learning, and a pioneer in identifying the right mix of face-to-face and online communication practices that will enhance learning effectiveness.

VI. Conclusion—The Path Forward

Obviously, the Online Learning department does not know what the future will hold but our mission as it continues to expand will remain committed to the effective use of online technologies in the RIT classroom. The lessons we have learned and the foundation we have built have prepared us to promote active learning through technology. Our primary focus remains support and delivery of distance learning degree programs. As technology continues to grow in its importance we hope to continue to provide guidance as an academic support unit. Looking ahead we plan to:

- partner with faculty who have chosen to do research and scholarship on technology in the teaching and learning process
- continue our investigation of technologies but include synchronous tools
- global outreach efforts to partner with other universities to combine strengths

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