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THE USE OF COMPRESSED VIDEO FOR DISTANCE LEARNING: FROM MIDDLE SCHOOL TO SENIOR CITIZENS

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Introduction

A review of a ten-year project using ISDN Compressed Video to connect middle and high schools around the world for monthly explorations of a variety of topics ranging from music concerts to joint science experiments. At the other extreme, the use of webcams over the Internet in Skype, ooVoo, Logitech, and Google Video to make free video conferencing calls by limited income senior citizens in a Quality of Life project illustrates the distance compressed video has come. Finally, the use of video conferencing in Elluminate in Blackboard for graduate online courses is described. Participants will be invited to use their desktop units to explore some of these options and video clips during the session.

The SAXophone project

For approximately ten years, "Students Around the World eXchanging over the phone" (SAXophone), provided middle and high school students around the world with the opportunity to meet and interact with students from other cultures and societies. The SAXophone project was sponsored by Nova Southeastern University and the Broward County, Florida BECON Distance Learning Center from 1995 until 2005. The project began at the September 1995 PictureTel User Group Annual Conference in Nashville, Tennessee. Three individuals attending the conference from different parts of the world met each other at lunch for the first time and began discussing ways to use compressed video equipment that they had recently received. The project began, as described by Mizell (1997), when Colonel Bent Kroon from the Swedish Military College, Mr. Thomas Ziegler, Computer Center Director at Ulster BOCES in New Paltz, New York, and Dr. Al Mizell of Nova Southeastern University (NSU) in Fort Lauderdale, Florida agreed to try to connect with each other from their home locations using the new NSU bridge as soon as they returned from the conference. Mr. Ted Detjen, now retired Assistant Director at BOCES, was then appointed by Mr. Ziegler to replace him as the BOCES participant. Although it took over three months to make the international connections work, these three (i.e., Florida, New York, and Sweden) finally were connected.

During the first year, the project emerged slowly. Originally named SAXophone, from the participating countries—"Swedish and American students eXchanging over the phone," the title had to change even though the acronym was kept the same. As additional countries joined the project, the title changed to reflect the purpose that the initial group of teachers and students envisioned for it: "Students Around the world eXchanging over the phone." The first formal session was held on December 11, 1995 when students in New York, Sweden, and Florida gave brief presentations, including skits, songs, and descriptions, describing their major winter holidays. Document cameras were used to show close-up images of typical foods, icons, photographs, etc. The second formal session was held on February 27, 1996 when students described a typical "Day in the Life" of students from each culture.

During the second year of the project, additional schools heard about it and became involved. Schools from England, Sweden, Finland, Poland, Norway, Greece, Germany, Japan, the UAE, Costa Rica, Japan, and the U.S. all participated in one or more sessions. Randy Palmer, in his comments in Chapter 11 of the text, *Teaching and Learning with Technology* (Lever-Duffy et al., 2003), said “With opportunities such as those provided by SAXophone, students come together as an international learning community in our global village” (p. 373).

Different topics were offered each month. Probably one of the most popular topics was the session where students read and discussed their original poetry reflecting their feelings. Equally engaging were the emotionally charged session with Holocaust survivors, a simulation game involving the global environment and oil drilling, and a music concert that included a symphonic presentation from England and a rock band from a New York alternative school. The impact of the project on preconceived notions is best illustrated by this 17-year old from the U.S. who said, “...that kids would get an idea that there are other ways to work things out than the way [they are done] in the U.S.” From across the ocean, a student from Sweden said, “We will understand each other better.”

The impact of the project has been described by Kontos and Mizell (1997). A report by Mizell (1999).summarizes participant evaluations of the project and conclusions from the project evaluations describe the value of the project.

In January 2006, the SAXophone project was closed. However, even though the SAXophone project was closed, NSU kept the Web page active for several years. Teachers visiting the SAXophone Web site were encouraged to set-up a similar competition on their own—either over ISDN or IP. Using the groundwork done by SAXophone, project developers could use the format, rules, prior schedules, and other forms available to them without cost on the SAXophone Web site.

Some of the published articles that you can access to read greater detail about this project:

Kontos, G. and Mizell, A. P. (1997). Global village classroom: The changing roles of teachers and students through technology. *TechTrends*, 42(5), 17-22.

Howard, C., Boettcher, J., Justice, L., Schenk, K., Rogers, P., & Berg, G., editors (2005). “Compressed video for the global village” by Mizell, A. in *Encyclopedia of Distance Learning*, 1, 317-322. Hershey, PA: Idea Group Reference.

Lever-Duffy, J., McDonald, J., & Mizell, A. (2003). *Teaching and Learning with Technology*. Boston: Allyn and Bacon.

Mizell, A. (1997). SAXophone: Enhancing the global village via compressed video. *Distance Education Report*, 1(3), 1-3.

Mizell, A. (1999). Creating a small, small world through videoconferencing: SAXophone. *Educational Technology Research and Development*, 47(4), 102-107.

SeniorComp

At Nova Southeastern University (NSU), Dr. Mizell and a senior volunteer, Cecil Sugarman, created a project to enable limited income senior citizens to obtain a new Dell computer, monitor, and printer plus 28 weeks of training in their use. They used the facilities of SeniorNet lab centers where available and provided the seniors with laptops that they could bring to class in locations where a SeniorNet center was not available.

They obtained funding from the Mandel Foundation to support ten groups of ten seniors over a six-year period. When Cecil Sugarman died and the funding from the Mandel Foundation ended, the project’s alumni were invited to use their computers to participate in an advanced course during the first year that SeniorComp had no funding.

Webcams over the Internet

In the second year without outside funding, Nova Southeastern University (NSU) awarded Dr. Mizell a \$10,000 Quality of Life grant to conduct research on the impact of the use of technology on the lives and attitudes of senior citizens with limited income. Twenty seniors at two South Florida Senior Centers were selected to participate in the project from October 2010 through May 2011. The main focus of the project was to provide each participant (students and instructors) with a Logitech Webcam and training and practice in its use to make free video calls over the Internet.

Students were taught how to subscribe to different video calling host sites, how to use their new web cameras and related equipment, how to make video calls, and how to upload recordings of their calls to YouTube – if they wished to do so. They created accounts on Skype, ooVoo, Logitech, and Google Video and were shown how to make free video point-to-point and video conferencing calls. They also heard about eight different aspects of Internet Safety.

When the project ended in May, 2011, 14 of the original 20 seniors completed the entire project. Summative data was collected from these seniors for comparison with their baseline data. At the closing luncheon, participants were invited to make comments if they wished. Many of the seniors spoke favorably about their new skills using web cameras over Skype and ooVoo to see and hear family members and friends, and their appreciation for the impact the course had on their lives.

Video conferencing in Elluminate

Within the graduate courses offered by the Fischler School of Education at NSU, the Elluminate program is used within the course management system, Blackboard. In Elluminate, up to six participants in a synchronous session can use their webcams so the class can see them. The instructor usually uses one of these six slots so he can be seen at times.

In the author's experience, the use of video made the synchronous class sessions more engaging and gave more of the feeling of a traditional face-to-face (F2F) classroom. Students could see visual cues on the instructor's face as well. The instructor could observe the effect on students during presentations, discussions, etc. Once, when a student dozed off, it was obvious to all.

Students who felt uncomfortable projecting their image simply did not indicate that they had a webcam available. There was no penalty for not using a webcam but most of the students felt it added to the class so they volunteered to connect visually if they owned a webcam.

Video conferencing software

It is interesting to watch the evolution of the two most popular, free videoconferencing sites, Skype and ooVoo. OoVoo states that eight of ten Skype users say they prefer ooVoo. Each time one of the sites offers something new and free for users, the other one responds. Currently, users must pay a premium on Skype to be able to make video conference calls with more than two participants but ooVoo has been allowing users to make calls for free with three participants. During May 2011, ooVoo allowed all users of free accounts to make calls with up to six participants.

Some individuals prefer to use the software that comes with their webcams, such as Logitech or Microsoft. Individuals who try several sites soon find that they prefer one service over the others but not everyone likes the same service so we continue to see a variety of sites being used.

The Future

It appears that the day of the “Dick Tracy Wrist Two-Way Video Camera” arrived in the early 21st Century. An obvious trend today is toward the ubiquitous use of video in every new device. With the built-in camcorder in most laptops, netbooks, notebooks, cell phones, tablets, and other new devices, the popularity of two-way video calling is becoming an accepted expectation. It would seem probable that almost every new device will have this capability and the ability to see anyone, anywhere, anytime will continue to evolve.

ONLINE LEARNING COMMUNITIES: ENHANCING UNDERGRADUATE STUDENTS' ACQUISITION OF INFORMATION SKILLS

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Introduction

Since the Association of College and Research Libraries (ACRL, 2000) approved the Information Literacy Competency Standards for Higher Education, many efforts have been made to help undergraduate students develop the information skills they need. Although there are different activities that have been developed to facilitate the acquisition of information skills and work with the students' limitations and the problems that are evidenced, and research has identified librarians as the key resource to educate students and to help them develop better research skills (Mundava, & Chaudhuri, 2007; Wilbe, 2006), the reality is that librarians do not have enough time available to spend with students and to support them. Students do not value the presence of the librarians in the classroom and do not consider that the provided information is part of the content they are learning (Brendle-Moczuk, 2006). The librarians are usually at a disadvantage when trying to assess the students' learning after only one session, for three main reasons: the limited contact with students, the absence of faculty support, and the librarian's different responsibilities (Choinski & Emanuel, 2005).

To address the students' needs within the time limitations and other possible obstacles, librarians have been developing online tutorials to facilitate the acquisition of specific information skills. One example of this type of resource is the Texas Information Literacy Tutorial (TILT), which was designed by the Digital Information Literacy Office of the University of Texas System Library (Roberts, 2003), and can be accessed by students and other individuals through the Internet.

Although it seems that online tutorials provide a once-and-for-all solution, there are limitations if the online tutorial is the only resource that is made available to students. They will miss the opportunity to interact, share, and communicate their different ideas, questions, and solutions through the whole learning process. These limitations could make a significant difference between a student who receives face-to-face instruction and a student who only uses an online tutorial.

As discussed by Karplus (2006), ACRL recommends that online tutorials and other types of online teaching resources should support diverse teaching approaches, incorporate appropriate information technologies and other media resources, and include active and collaborative activities. Considering this, online learning communities provide the opportunity to offer effective teaching approaches, because every member has the opportunity to share knowledge

and communicate specific needs. Also, through an online learning community, it is possible to incorporate diverse information resources, such as documents, links to specific web sites, videos, and images. In terms of the opportunity to enhance the development of information skills, online learning communities offer the opportunity to develop and use active and collaborative activities, such as discussion forums, chats, email, and other types of online communication tools, which will offer different types of resources to different types of learners.

Review of the Literature

Online Learning Communities

In general, “an online learning community is a group of people who meet online and communicate via communication networks, sharing common interests and goals, engaging in knowledge-related transactions, and supporting each other in their learning agendas” (Ma, 2006, p. 11). Davies, Ramsay, Lindfield, and Couperthwaite (2005) discuss the results of a learning community that was built with students of a BS Physiotherapy degree program at the University of Birmingham. The researchers found that students had the opportunity to improve their communication skills, enjoyed the interaction with different people and sharing their ideas and, after their participation, were able to develop their knowledge. They also identified the need to encourage students to participate in the online discussions because of the poor participation of some students. This last aspect is something that needs special attention during the design of an online learning community, which means that it is necessary to build effective strategies to promote students’ participation. One important strategy that could be used when designing an online learning community is to provide activities to help develop a sense of community among the participants.

Ma (2006) conducted a study in which he examined 12 students and one instructor in an online Master’s degree program at a major distance education institution. The author found that there was no real sense of an online learning community among the participants and that the interaction was centered around the professor and not among the students. As part of the conclusions, the author acknowledged the need to intentionally design and implement an online learning community as part of an online course and degree program. It was necessary to consider the importance of identifying, designing, and implementing effective teaching and learning strategies for the development of an online learning community.

Online Learning Communities in Library Environments

Graham, Faix, and Hartman (2009) present the experience of Kimbel Library. As explained by the authors, the library staff created a group through Facebook, whose main objective was to update students about new library resources, services, and events. Librarians also shared photographs of the different library areas and different activities held at the library. As a result, many students joined the group and shared their comments through the discussion forum and through email. As the authors discussed in the article, the experience of using Facebook was a new adventure for the librarians, but with very positive results. On one side, the librarians that were new to this technology had the opportunity to learn new ways of communication, while on the other side, students had the opportunity to share comments and ask questions through a tool they enjoyed and with which they were familiar.

Another experience with Facebook of the librarians at Rutgers University Libraries is presented in an article published by Glazer (2009). Their intention of creating a group through Facebook was to publish the library news, what is happening at the library, and information about new resources and services. They found that Facebook activities led to useful information about

students' preferences, positive press coverage, terrific testimonials, and rewarding extensions of established relationships.

Online Learning Communities and Information Literacy Programs

The literature that was discussed in the previous section evidences the benefits of the collaboration between librarians and faculty members, the benefits of an effective interaction between librarians and students, the popularity of Facebook as a social network, and the possibilities it provides to create new ways of communication with users. In general, it was also evidenced that "The majority of articles about Facebook found in library publications are concerned with explaining to the uninitiated exactly what Facebook is and with exploring various ways that Facebook might be used by librarians to promote library services" (Graham, Faix, & Hartman, 2009, p. 228). The importance of beginning this type of experience relies on the fact that Facebook is part of the Web 2.0 technologies that students are constantly exploring and using, and that many librarians are also starting to explore (Mitchell & Watstein, 2007).

However, of all the literature that was reviewed, only one article mentions the opportunity that Web 2.0 technologies (such as Facebook) provide the support to students while they are developing information skills. In this case, Mitchell and Watstein (2007) indicated that information literacy services such as "links to basic information literacy information (how to use, online tutorials, pathfinders, library staff responsible for information literacy instruction" (p. 523) may be used through Facebook. Also, the authors mentioned the possibility of providing links to learning objects for a course or providing access to a list of learning objects. Although this is mentioned as a possibility, there is still no evidence that there are librarians that are currently using Facebook to develop an online learning community to support students while they are developing specific information skills. There is a great deal of work that can be done related to this topic and how it can be developed as an effective tool for information literacy programs.

Purpose of the Study

Online learning communities could be considered as an alternative to face-to-face instruction and online tutorials, and an additional tool to enhance the acquisition of information skills by students. Furthermore, online learning communities will offer students the support they need in completing their course work when librarians do not have the time, space, and availability to meet their needs.

The purpose of this study was to investigate the effectiveness of the design and implementation of online learning communities on supporting students while they develop specific information skills. The following research questions facilitated the investigation and guided the study:

1. What are the information skills already possessed by undergraduate students?
2. How does the effectiveness of an online learning community compare to the effectiveness of library online tutorials regarding the students' acquisition and development of information skills?
3. How does the use of an online learning community compare with the use of online tutorials in terms of the communication and interaction between the librarian and students?
4. What is the level of satisfaction experienced by students who completed the library online tutorials when compared to the students who participated in the online learning community?

5. What are the steps that should be followed and the aspects that are important to consider for the effective development of online learning communities and online tutorials in order to enhance the students' acquisition of information skills?

Methodology

Context of the Study

University of Puerto Rico in Carolina (UPRC) is one of the 11 campuses of University of Puerto Rico (UPR) and consists of approximately 4,000 students, 250 faculty members, and 230 administrative personnel. The Learning Resources Center (LRC) of UPRC began operations in 1974 as the first academic department of the campus. Today, the LRC staff consists of 28 employees, including eight professional librarians, all with ALA accredited masters degrees. The LRC includes the following public service areas: Reference, Circulation and Reserve, Periodicals Collection, Puerto Rican Collection, and the Information Literacy and Technology Program (ILTP). ILTP offers a great number of teaching activities to faculty and students. Orientations, conferences, and workshops are offered to develop the users' information skills. These activities are developed abiding by the information literacy standards published by the Association of College and Research Libraries (2000).

As part of an evaluation process conducted at the library in 2007, the Library Evaluation Committee of the UPRC stated that "Many faculty members are unwilling to integrate information literacy activities into their courses" (p. 12). This finding evidences the limitation that the library staff experiences in the development of the students' information skills, and the need to effectively integrate the teaching of information skills into the courses. As a result of this evaluation, the following recommendations were presented: install a computer laboratory at the LRC at UPRC, integrate all library staff to collaborate with the ILTP, promote the integration of information literacy activities among all faculty members, and include these activities as part of all General Education courses. The ILTP is currently working on the integration of the information skills in the General Education courses, which will increase the information literacy activities.

Research Design

This study used a mixed method. The qualitative inquiry was a case study that provided the opportunity to conduct an in-depth exploration (Creswell, 2005) of the development of an online learning community and online tutorials, as well as the experiences of the users in a real-life context, using multiple data sources, such as focus groups, discussion postings, and emails.

The quantitative inquiry adopted a factorial design to examine the effectiveness of the online learning community and online tutorials. The two independent variables investigated in this study are the two instructional delivery methods: online tutorial and online learning communities. The dependent variable was the acquisition of information skills. The independent and interactional effects of the two independent variables on the dependent variable were examined, as shown in

Table 1 below:

Table 1: Independent Variables in the Factorial Design

Factor 1: Online Tutorial (OT)		
Factor 2: Online Learning Communities (OLC)	NOT-NOLC	OT-NOLC
	NOT-OLC	OT-OLC

Data Collection Procedures

The participants in this study were 95 undergraduate students registered in four sections of a second year English course. On average, these students ranged in age from 18 to 20. The four sections of the English course were randomly assigned to one of the four study conditions:

- NOT-NOLC: The section received the traditional one-time library session of face-to-face instruction for the acquisition of information skills.
- NOT-OLC: The section received the traditional one-time face-to-face instruction and was required to participate in an online learning community for 12 weeks to enhance their acquisition of information skills.
- OT-NOLC: The section received the traditional one-time face-to-face instruction and was required to complete four library online tutorials to enhance their acquisition of information skills.
- OT-OLC: The section received the traditional one-time face-to-face instruction and was required to complete four library online tutorials and participate in an online learning community for 12 weeks to enhance their acquisition of information skills.

Online tutorials and online learning communities were developed and used to facilitate students' acquisition of information skills. The researcher designed four online tutorials. Each online tutorial included a pre-test, a post-test, the course objectives, the course work, and the library instructions. Specific exercises about the content of the tutorials were included to reinforce the material that was explained. Specific information skills were practiced through each online tutorial, offering all the needed skills for the development of the course work. Participants were able to access the online tutorials at any moment, from anywhere.

The online learning community was developed using Facebook, which is a social utility and often used by students. Through this technology, one activity was offered each week for a total of 12 activities during the study. These activities included: questions to be answered about posted videos, PowerPoint presentations and questions related to the topics discussed through the presentations, link to Web sites previously evaluated, and discussion boards. All these activities were developed to teach specific information skills that are necessary to meet the course objectives and complete the course work.

An information literacy pre-test was administered that helped to identify the information skills already possessed by students before the study and their information needs. This pre-test was developed based on the course objectives and the information skills that were to be developed through the course.

Throughout the study, the researcher recorded the students' participation in the online learning community and collected the students' logs to complete the online tutorials. The students' acquisition of information skills across the four study conditions was measured by the results in the post-test.

At the end of the 12-week course period, the researcher asked a group of 15 students (three groups of five from each of the OT-NOLC, NOT-OLC, and OT-OLC conditions) to participate in a focus group to assess their satisfaction level with their participation in the online learning community and with the library online tutorials. The focus group discussions were recorded and then transcribed for data analysis. Using the transcripts, the researcher compared the students'

answers to the questions with their messages posted during their participation in the online learning community (discussion forums and emails). Through this comparison it was possible to identify if there were any discrepancies between what they expressed in the focus groups and the online learning community. Also, one week after the focus groups, the researcher visited the classroom and individually asked each participant if what they said actually matched their experience in the online learning community. This individual conversation allowed students to express what they really felt without any group pressure.

All study instruments (pre-test, post-test, and focus groups) were validated using a pilot group of 5 students who were not registered in the English courses. Their comments and observations were collected and utilized to modify the instruments for enhanced validity.

Results and Discussion

Pre-test

One-way analysis of variance (ANOVA) was used to determine whether there were significant differences among the pre-test scores of all groups. As presented in Table 2, there was no proof that there was significant statistical difference in the pre-existing information skills of the students across the four groups.

Table 2. ANOVA for Pre-test Results

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	57.855	3	19.285	1.088	.358
Within Groups	1790.202	101	17.725		
Total	1848.057	104			

Post-test

Table 3 presents the mean scores and standard deviations in the post-test for the four groups. As it is shown, OT-NOLC had the lowest mean value, while the NOT-OLC group had the highest mean value. In terms of the standard deviation, it is interesting to see that the NOT-OLC evidenced the lowest standard deviation, while the OT-NOLC group had the highest one.

Table 3. Means and Standard Deviations of the Post-test Results

	N	Mean	Std. Deviation	Minimum	Maximum
NOT-NOLC	16	19.25	4.480	11	26
NOT-OLC	25	25.32	2.174	22	29
OT-NOLC	22	18.64	4.716	5	23
OT-OLC	32	22.9	3.306	17	28
Total	95	21.86	4.471	5	29

After identifying and comparing the mean and standard deviation value it was necessary to conduct an ANOVA to determine if there is a statistical significant difference among groups. The results of the ANOVA showed that there was significant difference among the groups in their post-test scores.

Table 4. ANOVA for Post-test Results

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	658.815	3	219.605	16.375	.000

Within Groups	1220.406	91	13.411
Total	1879.221	94	

Since there was evidence of a statistical significant difference among the post-test scores, to find out, pair-wise, which group significantly differed from which group among the four, a post-hoc multiple comparison test (Tukey) was performed. To be able to perform this analysis, a table of two columns was prepared. On the first column a value was assigned for each group; 1 for the control group (NOT-NOLC), 2 for NOT-OLC group, 3 for OT-NOLC group, and 4 for OT-OLC group. Table 5 presents the output of this analysis.

Table 5. Tukey Output for the Post-test Scores

	Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
Tukey	1	3	.614	1.203	.957
	2	1	6.070*	1.172	.000
		3	6.684*	1.071	.000
		4	2.633*	.978	.041
	4	1	3.438*	1.121	.015
		3	4.051*	1.014	.001

The results showed that NOT-OLC was the group that significantly differed from the other three groups, meaning that this group was the one that obtained better scores on the post-test, thus demonstrating that the online learning community was more effective. When comparing OT-OLC with the other groups, the scores of OT-OLC significantly differed from the scores obtained by NOT-NOLC and OT-NOLC. When analyzing these results, it can be assumed that the OT-OLC group obtained better scores when compared with OT group because of their participation through the online learning community. In general, it can be concluded that the online learning community was more effective on students' information skill acquisition compared to the online tutorials.

Focus Groups

At the end of the 12-week course, the researcher guided three focus groups to ask the participants to share their perceptions of the experience in the study.

When the students that completed the online tutorials were asked to describe their experience, the first descriptor that was used by four out of the five students was educational, since they were able to learn a lot from the information that was provided. Three students indicated that they learned much about how to use the APA manual; two students indicated that they learned much about how to search for information through the Internet, and one student indicated that he learned much about searching for information through the library online databases. Other descriptors included: interesting, helpful, and good.

On the other hand, when the researcher asked this question to the students in OT-OLC, the first descriptor that was used was good, since they were able to learn new things. The descriptors used by the participants in the NOT-OLC group were: enriching, good, innovative, beneficial, and excellent. One student that considered this an enriching experience explained that "the use of Facebook is a useful alternative since almost all the students use Facebook almost all day." The student that considered that it was a good experience explained that "I know how to use Facebook, but I never used it for a course before. This experience was something new for me." A similar response was offered by the student who described this experience as excellent; this

student indicated that “It would never occur to me to use Facebook for an educational purpose; this experience opened my mind about other uses Facebook offers.” Another student added that “the interaction with the librarian was beneficial, and this is something that the online tutorials do not offer.”

The students were also asked to select one of the following, very satisfied, satisfied, or unsatisfied, to identify their satisfaction level with the experience. The results from the OT-NOLC group were: three students answered that they were satisfied, and two students answered that they were very satisfied. On the other hand, four students from OT-OLC answered that they felt very satisfied, while one student answered to be satisfied related to the use of the tutorials. Some of the students who answered that they were very satisfied explained that they recognized that they were able to learn how to complete their course work, especially their bibliographies. Also, these students appreciated the initiative of using the computer as part of the course. All the participants from NOT-OLC agreed that they were very satisfied with their participation through the online learning community. They expressed that that this was an interesting strategy that allowed them to develop their works. All the participants from both groups answered that they would recommend the use of Facebook. Some of the reasons participants gave were: “it was a useful experience for all the students”; “we felt confident in sharing questions”; “it provided us, as students, the information we need at any time, and the opportunity to have direct communication with the librarian”; “Facebook offers students another way to clarify questions,” “Facebook demonstrated to be a complete teaching strategy,” and because “it was useful.”

When the students were asked if they recommended the use of online tutorials as part of their courses, from the OT-NOLC group, four students agreed to recommend, and some of their reasons were: “these tools offer something dynamic to the course”; “because not all the students possess the skills that are necessary to search for and use information”; “I was able to learn how to prepare my course work”. On the other hand, only one student said that he would not recommend the use of the tutorials, since he got bored reading the information.

In terms of the answers from the OT-OLC and NOT-OLC groups, all the students would recommend the use of these tutorials, and some of their reasons were: “because they provided information that we needed to prepare our course work,” “because I learned about things I did not know,” and “because now I can use more the computers and the library Web page.” These answers showed the importance of identifying the specific information needs of the students before developing online tutorials. Also, it is necessary to design those tutorials using different strategies like video, sound files, images, and text, since it is necessary to meet different learning styles.

In general, these responses indicate that the students considered this experience as beneficial and enriching, since they were able to use Facebook to learn things they needed for their course work. They also agreed that this was something new, and they appreciated this integration.

Conclusions

After comparing and analyzing the results from the post-test, it can be concluded that the online learning community was more effective in enhancing the acquisition of information skills by undergraduate students. The ANOVA that was performed with the post-test scores revealed that there was a significant statistical difference between the groups. Furthermore, the results of the Tukey analysis revealed that the scores from the NOT-OLC group significantly differed from the other groups, proving it to be a more effective treatment. On the other hand, OT-NOLC group did not perform in a better way than the other groups.

In terms of the results from the control group, it can be concluded that one shot sessions of face-to-face library instruction do not provide the support students need to acquire and develop the information skills that are needed to complete different workshops. The time limitation of this type of activity only provides the opportunity to offer basic information about the library services and information resources, which is not enough to meet the students' information needs.

After analyzing the results of the guided focus groups of the students who completed the online tutorials and participated in the online learning community, it can be concluded that the students who participated through the online learning community unanimously agreed that they were very satisfied with the experience, while a great percentage of the participants who completed the online tutorials answered that they were satisfied. Specifically, their responses demonstrated that the online learning community was more effective when providing them with the information and support they needed during their course, although it can be understood that the difference in this satisfaction level was not significant. This same situation was shown in the differences between the students description of their experience, demonstrating that both treatments were effective.

The most important implication of this study is the development and implementation of online learning communities as a tool to enhance the information skills by undergraduate students. The decision to implement this type of experience requires librarians and professors to work together and make decisions regarding the specific objectives and activities that will be offered to students. During the planning process it is necessary to consider different aspects, such as: course objectives, course assignments and activities, and the specific information skills that are necessary to develop. After these decisions are made, librarians need to design teaching products that will be used during the process, and determine what information will be shared. To be able to develop an effective online learning community, it is also important to schedule the activities that will be offered during the semester, since it is important to promote an effective interaction and communication with students. It is this interaction the one that will provide the support students need to enhance their information skills.

It is recommended that further research in this area be done. The fact that Web 3.0 technologies could be used to enhance the information skills of students is still a topic that should be examined. It is important to consider that the study revealed the students' high level of satisfaction with the online learning community because of this; further study should address attitudes toward the use of other technologies for the same purpose.

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Online Instruction of Dyslexic Students: A Call to Action

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Abstract

This paper is a call to action for academic and information technology industry leaders to develop a generalizable online instructional model tailored to the learning needs of those suffering from dyslexia. It is estimated that 35% of entrepreneurs are dyslexic (Logan, 2009). According to the Sloan Consortium, online instruction is the fastest growing segment of the higher education industry (Allen & Seaman, 2010). Online entrepreneurship students may provide researchers with an opportunity to identify dyslexics clustered in higher proportions than other academic disciplines. There is no evidence to show entrepreneurship students are more likely to be dyslexic than other students, but the higher density of dyslexics in entrepreneurial careers suggests that dyslexic students may gravitate toward entrepreneurship programs. A model to tailor instruction to the needs of dyslexic entrepreneurship students in an online higher education setting may have a profoundly positive impact, when generalized across academic programs, on the instruction of current and future dyslexic online students.

Introduction

Colleges are entrusted to foster human development (Terenzio, 2002). However, this mission is not being completely fulfilled as course designers of online program have been slow to create innovative solutions tailored to the needs of dyslexic students. Online education is the fastest growing segment of academia (Allen & Seamen, 2010) and is expected to grow and gain wider acceptance throughout society. A recent meta-analysis conducted by the Department of Education (2009) has shown online instruction to be superior to traditional classroom settings insofar as helping students reach learning outcomes. However, there is a gap in the literature and in practice as to how to best instruct learning disabled, including dyslexic, online students.

The Sloan Consortium publishes a much anticipated data on online education annually, yet it makes no mention of initiatives in place to assist dyslexic students studying online. We know dyslexics learn differently and should be instructed differently to accommodate for their disabilities (Cass Business School, 2004). However, dyslexics are taught in the same manner as non-dyslexics in online classrooms.

Dyslexic entrepreneurship students in online degree programs offer researchers an opportunity to identify strategies to enhance learning outcomes of dyslexic students in virtual classroom environments. According to Logan (2009) 35% of entrepreneurs are dyslexic compared to 1% of corporate managers, and 10% of the general population (Bowers, 2007). Of course, preliminary data should be collected from entrepreneurship and other online classes to determine if similar ratios apply to higher education. The principal investigator hypothesizes that there is a significant difference in dyslexia rates among entrepreneurship students and students in non-business courses, but this hypothesis needs to be tested.

Problems and Opportunities

Entrepreneurs are more likely to possess a learning disability (Stanley, 2000) and develop coping skills (Logan, 2009) that enhance professional success. Examples of highly successful dyslexic entrepreneurs, including Charles Schwab and Richard Branson (Morris, 2002), appear in many practitioner-oriented publications such as Entrepreneur, Business Week, and Forbes.

However, a literature review of 19 leading scholarly entrepreneurship journals by the principal investigator identified no scholarly inquiry into the issue of tailoring instructional methodologies or best practices towards educating learning disabled entrepreneurship students online. While there is a large body of evidence on the topic of dyslexia in education journals targeting primary and secondary teachers, there remains a need to investigate best practice toward instructing dyslexic college students online.

Kenney College, which focuses in the area of entrepreneurship instruction in an online setting, is developing a model that innovatively uses instructional methods and information technology to manufacture content tailored to the needs of dyslexic students. However, there is ample opportunity for other academic leaders, researchers, and information technology providers to combine their talents and resources to help dyslexic students in virtual classrooms.

Researching entrepreneurs requires insight into their behaviors and motives. Entrepreneurs tend to be motivated by achievement (McClelland, 1961); value flexibility and are self-motivated. These same traits are hallmarks of the successful online student. Entrepreneurs are also more comfortable with untraditional learning environments (Lechuga, 2006) and non-traditional learning environments have been identified as useful in engaging dyslexics (Cass Business School, 2004). Smilor (2006) noted that entrepreneurs tend to be exceptional learners, but learn differently than most people:

Learning must be action oriented and practical. Analysis is fine, but takeaways from the learning process must be translated into immediate solutions to problems or means to take advantage of upcoming opportunities. Learning must involve and engage entrepreneurs. That is, it must in some way be customized to address their issues, challenges and needs. It is in this sense highly experiential. Entrepreneurs thus learn from everyday interactions with customers, suppliers, and competitors or they learn in more formal programs through experiential exercises, case studies or hands-on spreadsheets (p. 1).

Today's online modules are not tailored to meet the needs of varied learning styles (Whiteley 2007) much less dyslexic online students. However, there seems to be synergy between methods recommended in the scholarly literature to teach both entrepreneurs and dyslexics.

Growth of Online Business Programs

In recent years there has been a significant increase in the number of individuals pursuing business degrees online. This is occurring as the demand for online programs increase across the academy. According to Allen and Seaman (2010):

- 66% of colleges are reporting demand for new online classes and programs.
- In 2009, 4.6 million college students were taking at least one online class. This more than 25% of total college student population and a 1.4 million student increase since 2005.
- Demand for online courses is greater than demand for traditional courses.
- 74% of public university leaders view online education as central to their long-term strategy.

As many as 10% of students may be learning disabled (Bowers, 2007) yet existing online courses do not accommodate these students effectively, leading to missed opportunities and possibly increased attrition. The survey instrument used to generate the statistic that 35% of entrepreneurs are dyslexic (Logan, 2009) was the *Revised Adult Dyslexia Checklist* (Vinegrad, 1994). While a good starting point, a review of the literature identifies numerous survey instruments to measure dyslexic characteristic, and efforts should be made by researchers to assure that 35% of entrepreneurs are truly dyslexic, and entrepreneurship students should be surveyed to determine dyslexia rates among current entrepreneurship students.

A Call to Leaders

In 2010, there were over a million new online students enrolled in colleges within the United States. There are 5.6 million online students in the USA alone (Sloan Consortium, 2011). Dyslexia, as with all learning disabilities occurs with varying degrees of severity. Quantifying

dyslexics within society is challenging, and there is limited secondary research to glean the likely percentage of college students who are dyslexic. However, if we use the 2.2% as a benchmark (Casale, 2010), based on estimates of dyslexic college students with the United Kingdom, there are over 123,000 dyslexic online students in America. While there are numerous researchers focused on the relationship between instruction and dyslexia, and at least one college (i.e. Kenney College Graduate School of Global Entrepreneurship) with faculty engaged in ethnographic research in this area, there is a need for more collaboration and connectivity between the scholarly community and information technology leaders.

Not only is there an entrepreneurial opportunity, but there is a social entrepreneurship component as well. Essentially, entrepreneurs need to work together to develop solutions that assist the next generation of entrepreneurs who are pursuing an online academic path. This paper is a call to action to all those committed to harnessing the power of technology and education to solve societal problems.

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THE MISSING LINK: DISCOVERING YOUR FACILITATION POWER FOR ONLINE COURSES

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INTRODUCTION

Unfortunately, most of our faculty development related to online learning has been regarding designing courses. Yet where do we faculty spend most of our time? We spend it facilitating the courses, semester after semester. However, one of the reasons more one provides more guidance about online facilitation is that many people assume teaching online is more or less the same as traditional instruction. In fact, nothing can be further from the truth (Fink, 2003). Online learning shifts the focus from teacher to learners, and our role as educators from “all knowing experts” dispensing knowledge, to facilitators of more self-directed and independent learning. How do we do that? Where do we find good examples? Where are the boundaries for facilitating online learning? This paper provides recommendations to answer these and many more questions about facilitating online learning.

BRAVING THE WATERS OF FACILITATION

Once ready to leap into facilitation as a new approach to teaching, most faculty wade gradually into these strange pedagogical waters rather than dive in headfirst. However, if we as faculty focus on developing a personalized form of facilitation, the once scary or risky process can very quickly shift to *thrilling* (Lari, 2009).

Self-Assessment

In building new facilitation strategies, we can begin by examining how well we facilitate our campus-based classes. A simple self-assessment tool can aid in this effort. Once we begin teaching online, opportunities for continued self-reflection (Schon, 1983) abound and we can examine our online facilitation efforts through tools related to these activities (See Appendix A). By examining our efforts in specific areas (such as feedback for students, complete preparation of online materials, coordinating online small groups, cultivating safety and respect among participants, etc.), we will have specific direction for improving our online facilitation strategies.

Making Facilitation Personal

Crafting our own version of facilitative teaching is a renewing and invigorating experience for faculty when pursued as discovery (Collison et al, 2000; King, 2011). Imagine peeling back the layers of our core teaching values, and purposes, one by one, and continuing to discover opportunities to support students through facilitative teaching strategies. Reflective practice can guide such professional learning efforts in effective ways fostering faculty’s lifelong learning (Cranton, 2001; Schon, 1983).

In considering this personal and professional learning, we recognize individual differences will lead all professors to unique specific details and pathways in their professional growth. Providing space for freedom, creativity and new possibilities builds a fertile environment for learning and change (Cranton, 1996; Wlodlowski, 2001).

DEFINING FACILITATION

Facilitation Defined

Facilitating online courses incorporates many possibilities, but by basic definition facilitation means “to assist the progress of a person/program” or “to make easier or less difficult” (Random House Dictionary, 2011). Therefore, the definition shifts our focus to what we do in our online courses to support student learning progress and how we ease that experience even at a distance.

Certainly, some educators focus on facilitation in their traditional, face to face classes, but not all do. Because online learning is so much more dependent on self-discipline and initiative than traditional classes (Mullen & Tallent-Runnels, 2006), students need more support by their instructors to bridge the gap in the learning process. Depending on their traditional teaching style, some educators consider their role differently. However, the literature reveals that in online learning contexts a facilitative style is more successful (An, Shim, & Lim, 2009; Haavind, 2006; Lockyer et al, 2006).

Online Facilitation

Such facilitation may include, but is not limited to virtual office hours, additional online support materials, more frequent and detailed feedback, assignment installments, and transparency in grading and evaluation criteria (i.e., rubrics), etc. The following sections briefly introduce each of the suggestions for advancing online facilitation practice.

Virtual Office Hours. The instructor can setup virtual meeting with the students using different kind of online communications such as Skype, Adobe Connect, Elluminate, etc. To do so, instructors use a webcam to video conference with the students, and address student questions about content, policies or assignments. The video connection can greatly improve communication in situations of distress and confusion. Moreover, video connections with the instructor, increases the rapport between student and teacher which many find essential to successful learning (Brookfield, 1995, 2009; Cranton, 2001). This suggestion emerges from the importance to communicate with students, hear their specific concerns, and provide complete resolution of any outstanding issues.

Additional Online Support Materials. Posting handouts and instructions for students is very helpful, because they can return to them at any time as a reference for their work. This form of support is much more important in online classes than on-campus classes, because students do not meet with the instructor each week and do not have as many opportunities to clarify assignment expectations or clarify content questions (An, Shin, & Lim, 2009; Fink 2003). Posting previous projects or examples helps students understand the instructor’s expectations, while it may have it drawbacks of restricting creativity.

More Frequent Feedback. Providing frequent feedback for students work is essential in facilitating the learning progress at a distance. Replying to students’ posts, whether publicly or privately, as well as commenting on their assignments and their group work are forms of frequent feedback. Research and experience demonstrate that compared to a traditional classroom, most online students need ongoing feedback from their instructor in order to cultivate the instructor-student rapport and sustain their course participation (Collison, Elbaum, Haavind, & Tinker, 2000).

More Detailed Feedback. Offering feedback that is more detailed to online students helps them build their understanding of the course content and assignment expectations. Such detailed feedback includes providing specific comments for each student regarding their work, participation, posts, and activities. Most LMS now provide easier ways to report such feedback privately, but if the system is cumbersome, university email is also an option. Professors have to

develop streamline ways to meet this need while handling the heavy demand of online instruction (Conceicao, & Lehman, 2011).

Assignment Installments. One of the methods that online faculty find helpful in providing structure for students is to divide assignment into several segments or milestones. Many online learners lack the self-directed learning and self-discipline skills needed to succeed in online courses (Collison, et. al, 2000; Dirkx & Smith, 2004). Multiply this problem by three or four and you have a wayward small online group, unable to achieve their goals. Faculty who provide consistent structure to such groups see much greater learning occur, as well as empowered collaborative learning in action.

Consider that for an online group project the following milestones could be used: (1) students submit their team topic and names, (2) each group submits a list of group tasks and who is assigned to each, (3) the groups submit progress reports at the project midpoint, (4) the groups submit their final group project to the discussion board where they can engage their classmates in a discussion about it, and (5) each student submits a private reflective statement for what they learned from their participation and the project/assignment. This approach does not require the instructor to force compliance: it provides structure, enabling students to build the skills they need for online and workplace success.

Rubrics. One of the most helpful methods in facilitating the learning progress at a distance is to create a rubric for assessment. Rubrics increase transparency as they help students understand what is expected from them, as well as it allows them to self-score their work and make it better before submitting it to the instructor. Furthermore, rubrics can be designed to increase structure, accountability, motivation, and learning effectiveness among electronic groups.

Grading Rubric for Assignment 1: <u>Collaborative Archive Project</u>			
10 pts each short paper: max 2 pts per criteria			
	C 0.50-0.99 List the characteristics of a grade of C for each criteria	B 1.00-1.50 List the characteristics of a grade of B for each criteria	A 1.51-2.00 List the characteristics of a grade of A for each criteria
Criteria 1	Displays basic understanding of the chosen topic	Displays moderate understanding, insight and reflection on the chosen topic	Displays exceptional depth of understanding, insight, and reflection on the topic
Criteria 2	Demonstrates basic research of peer reviewed literary sources AND basic analysis of the findings in the final paper	Demonstrates moderate to excellent research of peer reviewed literary sources AND moderate to excellent analysis of the findings in the final paper	Demonstrates substantial research of peer reviewed literary sources AND excellent analysis of the findings in the final paper
Criteria 3	Demonstrates basic insight AND minimal synthesis of literature to develop a unique or updated perspective of curriculum issues related to the selected topic for higher education, community college or adult ed.	Demonstrates moderate insight AND moderate to excellent synthesis of literature to develop a unique or updated perspective of curriculum issues related to the selected topic for higher education, community college or adult ed.	Demonstrates outstanding insight AND excellent synthesis of literature to develop a unique or updated perspective of curriculum issues related to the selected topic for higher education, community college or adult ed.
Criteria 4	Presents few examples of grounded, practical OR forward thinking/innovative recommendations regarding the curriculum topic chosen	Presents moderate achievement in grounded, practical, AND forward thinking/innovative recommendations regarding the curriculum topic chosen	Presents exceptional work in presenting grounded, practical, but forward thinking/innovative recommendations regarding the curriculum topic chosen

Criteria 5	Several errors in writing quality (grammar, spelling, etc.), substantial lack of organization of materials.	Few errors, well-written (grammar, spelling, etc.), but well organized materials.	No errors, well-written (grammar, spelling, etc.), and well organized materials.
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Figure 1: Rubric Sample for a Collaborative Project

TYPES OF FACILITATION AND COMMUNICATION POWER

The role of communication and building teacher-student rapport (Betts, 2009) is an example of one of the specific needs we address in this section. Strategies for such communication include (1) identifying several modes for students to have as options to communicate with the instructor to afford different medium and timeframe (synchronous and not), (2) balancing instructor access and boundaries (setting expectations and limits), (3) structuring frequent, but brief forms for feedback, (4) Frequently Asked Questions (FAQs), (5) Query folders and more.

Several Modes of Communication. In order to build and continue instructor-student rapport and feedback, having multiple modes for students to communicate with the instructor is invaluable. Addressing issues of access and preference when building equitable learning communities ensures our online learners are able to communicate with us easily. A good beginning includes providing several of the following options, or others: e-mail, Skype, telephone, videoconferencing, discussion board, etc.

Balance for Instructors. It is easy to become overwhelmed when teaching online. Strategies for providing quality and consistent learning support include instructors setting boundaries and guiding students to observe them (Conceicao, & Lehman, 2011). One example is to inform students that they will respond to students' emails within 24-48 hrs. Using this approach, students learn not send redundant e-mails and to readjust their expectations. At the same time, we provide guidance towards developing more professional online behavior.

Frequent, Brief Feedback Forms. Providing guidelines for students helps to facilitate the learning progress at a distance. When instructors deliver frequent and brief feedback they guide students towards better learning and increase the transparency of expectations. Faculty can expedite this process by building feedback on the structure of their assignment rubrics (see below).

FAQs. After teaching an online course several times, instructors will usually be able to develop a list of students' FAQS. Reformatting this list into a FAQ webpage, blog or Wiki, or posting them in a FAQ folder provides greater transparency and much more information for students. An added benefit to the discussion board or wiki formats is that students may reply to one another when additional questions arrive. Peer learning can be powerful learning while building learning communities. Unlike e-mail, the FAQ also provides instant replies for students' questions. Students may also suggest additional questions for the list thereby building responsibility and ownership by providing valuable input for the course.

Query Folders. A slight variation on the FAQ is the Query folder. In this strategy, instructors post folders in the discussion board labeled, Syllabus Questions, Assignment 1 Questions, etc. This approach encourages students to post their questions publically and ensures access and equity of information to all class members than email does. Moreover, sometimes peers answer the questions before the instructor, demonstrating a learning community in action.

GROUP WORK FACILITATION

Many faculty are at a loss as to how to facilitate online small groups effectively (Collison et al, 2000; Conceicao et al, 2011). This section, as well as the ones prior, provides a few specific

examples, strategies, and options, which we will demonstrate and discuss guiding effective group learning (An, Shin, & Lim, 2009; Conrad et al, 2004). A few of the critical strategies integrated in these sections include (1) managing projects by segments or milestones (see the extended example listed under *Measuring Students' Motivation*), (2) using assignment options for students to create content, (3) hosting options such as group work in private small groups or private wikis where the instructor can monitor student work, and (3) offering group consult sessions where the instructor virtually meets with the small group to check on progress and provide resources or direction. (An, & Kim, 2007; Dirkx, & Smith, 2004).

Sample Group Project: Our sample course instructor may divide the class into online groups by random assignment. During course design, she constructed the related materials and activities using several Web 2.0 tools. Each group selects two of the three activities to complete by the stated due dates. In addition to the activity, each group member will write a reflection of the group activity including roles, responsibilities, learning outcomes and benefits. Faculty may offer to meet as a “project consultant” with each group or the group leaders via Skype, phone, or discussion board to work through problems, or discuss questions they may have.

- **Activity One: Content Design.** Learners use a Wiki platform to create in-depth and interactive content for one module of the course material. They must carefully research the content, plan their module, negotiate their decisions, and create the content based Wiki for the entire class to view.
- **Activity Two: Podcast Development.** The small group researches, plans, records and uploads a podcast (audio or video) to share their research topic with the class.
- **Activity Three: Mashup Learning.** The groups develop a Mashup Site on their research topic. (Mashups use information and functions from many sources, and then organize and present them in one website or interface (i.e., a travel website presents information from weather channels, Google maps, and travelers’ reviews.)

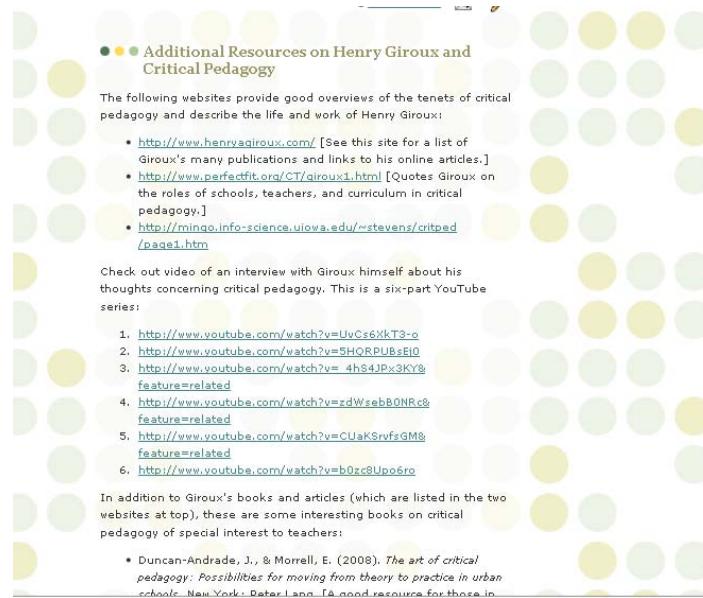


Figure 2: Screenshot of Mashup Blog Post by Student

Assessment While Building Learner Skills

Facilitation and assessment are not frequently linked concepts, but research and experience reveal opportunities to improve assessment and efficiency through group facilitation. Several

strategies to leverage facilitation for better student assessment include (1) using rubrics to build transparency and responsible learners, (2) leveraging self-assessment to build self-directed learners, and (3) increasing students' motivation and learning effectiveness by building accountability in online small groups (An, & Kim, 2007; Dirkx, & Smith, 2004).

Creating online groups using an LMS can facilitate the learning and assessment process for students as well as educators (Stewart, 2010). While students can collaborate electronically, educators can monitor them and trace their reactions, inputs, and discussions. Educators begin by allowing students to select their roles in the group, such as leader, communicator, and researcher. Students may develop a brief explanation of their role and their deadline.

DISCOVERING YOUR FACILITATION STYLE

Recognizing that each of us has a unique teaching style, there are several tools to help identify *facilitative* teaching styles. The tools include but are not limited to self-assessments, facilitation planning tools, and resources for facilitation and continuing professional development in the skill. We encourage readers to use one of the tools listed below or the one we created in Appendix A. The goal is reflective practice to improve online facilitation (An, Shin, & Lim, 2009; Schon, 1983).

Several helpful resources for facilitation self-assessment tools include the following links

- WIC Learning Online: http://www.nal.usda.gov/wicworks/WIC_Learning_Online/support/job_aids/assessment.pdf
- Facilitation Skills Assessment: <http://intranet.library.arizona.edu/teams/hroef/effectiveness/documents/FacilitationSkillsSelfAssessment100507.doc>
- Facilitator Journal: <http://www.masterfacilitatorjournal.com/assess.pdf>

CONCLUSION

When teaching online courses a major concern for success becomes how to facilitate learning progress at a distance. When instructors cannot determine if students understand because they cannot see the students, we need different strategies than we use in traditional classrooms to support learning.

As discussed above when teaching online courses facilitating the process does not mean giving the students the answers. Instead, it includes helping them build their understanding, building self-directed learning strategies, and taking greater responsibility of their learning. The strategies and research included in this paper provide a direction for instructors to increase student success in their online courses while also making online teaching manageable.

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APPENDIX A

FACILITATOR SELF-ASSESSMENT TOOL

Instructions: Use the following tool to help you reflect on your performance as a facilitator. When a group discussion session is over, reflect on your performance, rate yourself, and think about how you can practice and improve as a facilitator for your next online courses.

1. Please identify whether you are a Faculty member or a Student

Assess your most recent online facilitation performance by checking the appropriate box for each skill/behavior using the following scale:

S: Strong achievement M: More progress needed D: Did not consider NA: Not applicable

	S	M	D	NA
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2. I was prepared for the session. All links were working and content available.				
3. I informed students I was available to meet with their groups.				
4. I shared the importance of active listening and respecting the ideas of others.				
5. I posted a question as an icebreaker that allowed participants to share something about themselves in a non-threatening, enjoyable way.				
6. I posted open-ended questions that began with Who, What, When, Why, or How.				
7. I allowed group members to select or focus on topic of interest to them.				
8. I made sure that all group members had an opportunity to participate.				
9. I provided multiple ways for students communicate questions to me.				
10. I watched online groups to see if any group members monopolized "time and discussion."				
11. I recognized fears or disagreements among group members and brought them out into the open.				
12. I modeled active listening by focusing on individuals' comments when they posted.				
13. I gave positive reinforcement and feedback with a word of praise and / or follow up questions.				
14. I used words that everyone was familiar with, avoiding technical terms.				
15. I brought the group back to a topic when it strayed from the main issue and obtained agreement from the group when it was time for a change of topic.				
16. I avoided debating ideas with group members.				
17. I cultivated a climate of respect and safety for group interactions.				
18. I resisted the urge to "teach." Instead, I listened, talked with, and/or learned something from the participants and their experiences.				
19. I dealt with misinformation among learners in a positive and/or constructive way.				
20. I brought ideas together, highlighting certain points made during the conversation.				
21. I had the group members share one new thing they learned or something they may do differently.				
22. These are some items I plan to practice and strengthen the next time I facilitate an online group discussion:				

* This tool has been adapted from WIC Learning Online Instrument by Kathleen P. King and

**INCLUDING “ANYONE” IN THE “ANYTIME, ANYWHERE” PARADIGM: STRATEGIES
TO BUILD ACCESS IN DISTANCE EDUCATION**

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INTRODUCTION

In the past 30 years, distance learning has come a long way in innovative technologies advancing opportunities for teaching and learning. In 2011, the public understands and accepts widely the once surprising concept of “Anytime, Anywhere” learning (Allen & Seaman, 2010). To expand our educational commitment to access and equity, this paper addresses the need and means to incorporate “Anyone” into this paradigm.

While we spend a great deal of time and effort teaching educators to adopt and design effective online learning, we focus much less on creating welcoming and accessible online learning environments for every student. This paper has three major sections: (1) defining the issues related to accessible online learning, (2) defining and providing examples of Universal Design Learning (UDL) and assistive technology easily applied to online classes, and (3) sharing strategies for online learning access by addressing policy issues, student needs and online course design. By introducing and discussing these

areas of online course facilitation, our aim is to introduce new strategies and resources while also building awareness of the need to design our courses in higher education for the needs of all learners.

DISCOVERING ISSUES FOR ACCESSIBLE ONLINE LEARNING

Universities struggle to keep pace with the changing educational needs of an ever growing and changing population base (Allen & Seaman, 2010). The rapid growth of online learning highlights this lag and necessitates changes in the traditional structure of universities (Hillman & Corkery, 2010). A few years ago, a typical first day included crowded walkways and parking lots, administrative offices bustling with activity, and long lines at on-campus food services. Today, a typical first day of class may be a mouse click away. Due to these dramatic changes, universities must think differently about how students' expectations of and needs for accessing educational and support services.

The decision to offer distance learning courses and/or programs creates a ripple effect across the institution. Institutions design non-academic departments like Admissions, the Business Office, and Registrar around the traditional face-to-face sixteen week semester, not for the shift created by distance learning. Unfortunately, this lack of preparation creates a myriad of challenges for online students who, before they are able to log on for their first day of class, must navigate an institutional framework that is not yet ready to receive them. To illustrate, many institutions offer distance learning courses in abbreviated semesters or terms. Eight week or sometimes four week mini-terms replace the sixteen week semester as abbreviated course formats provide benefits for both the student and the institution. With this calendar, students complete more courses allowing them to reach degree completion at an accelerated pace and institutions benefit from the enrollment growth. Changes needing consideration include payment deadlines, add/drop deadlines, registration dates, information technology support delivery, as only a few examples (Hillman & Corkery, 2010).

Clearly, distance learning introduced new opportunities and challenges for higher education institutions. The administrative and student service processes used to support traditional face-to-face course delivery simply do not work well for distance learning students and institutions cannot underestimate the importance of these services. La Padula, 2003 expresses this best "A student's distance learning experience is often shaped by the quality of the services that support the educational process. Online learners benefit from student support services specifically designed to meet their needs" (p.120). To be successful in the online learning arena, institutions must be prepared to re-think current institutional frameworks and consider new ways of conducting business in order to increase access to online learning.

STUDENTS WITH SPECIAL NEEDS

Continuing along this theme of access ultimately brings forward the need for institutional support of students with special needs desiring or needing to enroll in online courses. Yet although the resources are readily available, special needs of students are not within the scope of the faculty's attention, nor are the means to design and teach online courses for special need students. How do we change this pattern? Three strategies are capable of substantially tipping the balance in the direction of accessibility of special needs learners: 1) invite your campus disability services office to post their top ten accessibility tips for online courses on the home page of the Learning Management System (LMS), 2) embed key accessibility resources into the LMS menu and course control panel, and 3) provide online accessibility workshops in all campus faculty development venues: on-demand formats, podcasts, face-to-face, department meetings, campus conferences, etc.

Once faculty become more aware of the need to address special needs students in online environments, they will begin to search for the means to do so. By university experts providing key resources, strategies and training to guide faculty learning in these areas, they build greater success, reduce frustration, and cultivate ethical student-centered instruction. Showcasing the work of early faculty adopters of accessible online instruction will demonstrate success and encourage collaboration regarding best practices.

STUDENT TECHNOLOGY AND READINESS ISSUES

As we consider how to design online courses, which are truly welcoming to all students, many times we make assumptions about technology access and readiness. Specifically, while many parts of well-developed countries have their expectations of broadband access, this is not true for all people in either rural or urban settings (Zou, 2011). Therefore, institutions need to determine how to meet the needs of future students to have the online access they need for successful learning.

In addition, sustained research demonstrates that there are indicators of student readiness for online learning. These indicators not only include the obvious technology access and literacy, but also self-discipline, initiative, and strong reading skills (Gibson, 2006; Mullen & Tallent-Runnels, 2006). How can we as educators and institutions help students assess and/or develop these skills? Providing self-assessment tools for prospective students to use prior to enrollment is a valuable, and scalable, way to build awareness of issues and needs, while also cultivating responsibility and self-efficacy (Gibson). As we support students making informed decisions about their readiness for online learning and provide full support services, the circle of access grows wider.

EXPLORING UNIVERSAL DESIGN AND ASSISTIVE TECHNOLOGY

Fortunately, an area within distance learning which has been growing for the last 15 years is that of accessibility, and ease of use. Many researchers and centers have this topic as the focus of their work and have made so much headway that the accessibility approach to design is now called Universal Design (Burgstahler, Anderson, & Litskow, 2011; University of Arkansas at Little Rock, n.d.).

There are several obvious benefits to Universal Design as it affords people with various disabilities the ability to access, or better access web sites and distance learning. Such Universal Design includes features which will be compatible to screen readers (for the blind or seeing impaired) and voice to text - for those people who have difficulty typing - (Burgstahler, Anderson, & Litskow, 2011). While many software programs have been available for decades to address these issues, they have customarily been quite expensive. Now faculty and students alike find that many of these accessibility features are in their computers' operating system at no additional cost (King, 2011).

In addition to technical course design (using code), there are many aspects of designing distance learning which professors have control over to make a course more accessible by using Universal Design principles. This partial list of strategies reveals easy ways to make online courses more user-friendly. Considering that varied needs of students with learning disabilities, over time faculty could add additional means to share course context so that learners with vision problems could hear audio versions of texts, for instance.

There are free conversion programs which transform text files into MP3 (audio) files. This strategy addresses accommodation needs for face to face and online classes. An example of a commercial product is Read and Write, Gold (BrightEye Technology, 2010), which provides assistance for students to have text read aloud, whether in PDF or other text form. Research demonstrates that Read and Write, Gold specifically addresses the learning needs of not only visually impaired, but also dyslexic, ESL and learning impaired students.

Other strategies include using different multimedia across a unit in order that students who are auditory, text or visual learners will find their preferred method for some of the activities. In our experience, it pleasantly surprises most faculty how easy it is to customize the LMS to include other content formats. Consider how to include the meaning of the content to be studied in video, audio and text. This strategy ensures that all students will find their learning preference addressed and will have greater potential to master the content and application.

FREE RESOURCES (IN YOUR OPERATING SYSTEM AND OTHERS)

Faculty can make a significant difference in the life of special needs learners by pairing the appropriate designing of online courses with Universal Design principles and free programs. When we design courses in ways that people with different needs can access them, sometimes the means to do so becomes the barrier. The great news is that in 2011, our major computer operating systems have screen readers,

magnifiers and other programs included onboard at no additional cost. Any of these materials can be used to guide individual and group faculty development.

However, most users are not aware of these tools, so what can faculty do? Exploring just these few sites which include free resource will expand your awareness of free tools and networks available to support faculty learning and study support. Following each item in the list is a very brief annotation to guide your site reviews and how faculty and students could employ these resources.

AHEAD: Association of Higher Education and Disability <http://www.ahead.org/>

A professional association for faculty and administrations interested in disability in higher education. Several free publications and resources for increasing understanding on the topic. Inexpensive membership.

DO-IT: Disability, Opportunities, Internetworking, and Technology
<http://www.washington.edu/doit/>

Originally launched at the University of Wisconsin through a Fund for the Improvement of Postsecondary education (FIPSE), this resource and learning portal is now hosted by the US government. You will find abundant free resources, insights and news about accessibility in higher education here.

Universal Design Toolkit <http://www.ahead.org/resources/universal-design>

The AHEAD association has worked to develop a nuts and bolts introduction to Universal Design. These abundant resources for further readings, tools and recommended practices are all free on the web.

WAVE Accessibility Toolbar: <http://webaim.org/toolbar>

Several of these free tools are available on the web. WAVE is particularly robust and reliable to guide users in determining if the web pages they develop are accessible to blind or deaf users. This program is a toolbar which one downloads and installs in the web browser. It is activated when needed to evaluate a page. Learn by doing is the motto here.

WebAim (Introduction to Web accessibility) <http://webaim.org/>

Another extensive site which introduces the scope of disability, but as it particularly relates to access to the web. Nobody reaches this goal better than WebAim. Free resources and abundant learning material to guide faculty in understanding disability needs and accessible design strategies.

PAID RESOURCES

For more specific and advanced needs, there are many different applications, likely already on campus for student access. A good place to start would be campus disability offices which usually provide resources and/or access to specialized accessibility technology. Moreover, understanding the available tools and their potential enables instructors to develop and plan courses which work within that scope. The following list of assistive technology tools is useful in expanding faculty and student available accommodation strategies and resource base further.

SHARING STRATEGIES FOR ONLINE LEARNING ACCESS

Before institutions determine the services needed to support their distance learners, they must first know two things 1) Who their distance learners are (or who they want them to be), and 2) Are they ready to serve distance learners? The profile of an institution's distance learning population is important because it provides key information to guide an institution's approach to increasing access to support services for distance learners. For instance, an institution at which the majority of the students take courses both online and face-to-face needs to approach access to student services differently than one at which most distance learning students take courses predominantly online. Institutions also determine their readiness to serve distance learners by identifying barriers to access and gaps in current services (Zou, 2011).

Institutions know that distance learning has the potential to significantly impact enrollment growth, but this growth is not without consequence. As a result, institutions must be strategic as they foray into the world of distance education. An important first step is the creation of a distance learning task force. This core group should include individuals from across campus and must include a representative to communicate with upper level administration (Hillman & Corkery, 2010). Goals for the task force include determining the distance learning program(s) the institution hopes to offer, target populations and institutional structures needed to support the process. For institutions already transitioned to distance learning, but seeking to improve access and/or expand support service offerings, a helpful exercise is to conduct a process-mapping session. Hillman & Corkery, 2010 define process mapping as ‘outlining from the student’s standpoint, the structure of initial contact through admissions to the start of classes and beyond with a focus on retention’ (p. 469). Process mapping can be an important tool in determining barriers to access and gaps in current service offerings for distance learners.

Other important considerations for distance learners are the type of service offerings. When offered, the most common services provided tend to be those that are within the main administrative context (admissions, financial aid, registration, etc.), but, similarly to campus based students, online learners may need access to more support. Additional services might include academic tutoring, library resources, advising, counseling services, personal counseling and career services (La Padula, 2003).

Higher Education institutions find greater success when they integrate several critical services in a common portal to create an online version of a centralized student services center. Consider how much more cost efficient and scalable such an approach is compared to redundant specialized online student service centers. In addition, from the student’s perspective, access to visibility of services escalates when delivered in a portal-like format (Phelps, 2006). Smaller colleges have also explored sharing resources across institutions: for instance, multiple colleges may opt to share library, admissions or registration systems (Phelps).

CONCLUSION AND GETTING STARTED

This paper has: 1) offered recommendations to improve access to online education by improving support services for distance learners (including tools and resources), and 2) highlighted several strategies for faculty to select from to begin modifying their online courses immediately for accessibility. In addition, we have discussed how faculty can make these choices for themselves, choose where to begin, decide their pace, and incorporate resources based on student needs and course content.

Self-efficacy is just as important for faculty as it is for students; therefore, this paper builds understanding and resource repertoire for faculty to gain confidence as online educators teaching diverse communities of learners. We realize this, and so this paper introduces the Universal Design Learning approach. Our hope is that more faculty will realize how they can include ALL students in their online *and* face to face classes all the time. Designing to meet all learners’ needs ensures no one is excluded.

In the same way, it is the faculty who will continue to develop the best ways to make our classes truly inclusive. Building communities where we can share strategies, and barriers will be powerful in advancing our learning. How will you continue your professional development in online learning accessibility?

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