Streaming Student Speeches on the Internet:
Convenient and "Connected" Feedback in the Basic Course

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The purpose of this study was to examine the use of video streaming of student speeches on the Internet as a method of feedback. Streaming video refers to motion video with accompanying audio that is delivered live or asynchronously and is available at the click of a mouse on a website. A random sample of 73 undergraduate students enrolled in three sections of a basic speech course over a period of three semesters at a mid-western university chose to fully participate in the study. To research the topic, student speeches were videotaped and posted to a "protected" Internet site that could only be accessed by the students in the class. Students then had the opportunity to access the site, view their speech, prepare a list of speech goals based on their viewing, and later evaluate the experience by means of a questionnaire. The purpose of the questionnaire was to provide the students with an opportunity to evaluate the video streaming of their speeches on the Internet as a method of feedback. According to the results, the students reported the viewing of their streamed speeches on the Internet to be a convenient and effective medium for feedback and an experience in "connected learning that allowed them to share their speech with friends and family. All of the students were treated in accordance with the ethical standards outlined by the university's Institutional Review Board for the Protection of Human Subjects. All of the students were informed about how the data would be used; each student was given a Consent Form and informed about issues of confidentiality and/or anonymity of the data. Students who chose to provide open-ended responses on the questionnaire were given the opportunity to choose if they would like their name associated with their comment. The anonymity and/or confidentiality of the open-ended data was guaranteed, contingent upon the student's written request. As the study makes clear, issues of privacy, controlled access, copyright, and ownership are topics of enormous concern. Faculty must take steps to protect their students and themselves. Future research should explore how, if at all, the use of streamed speeches in the basic course improves students' communication competencies. Although this study was not designed to measure improvement, it did appear that students began to consider more seriously their own impression management and improve their delivery skills. (Contains 75 references, Appendix A: Speech Goals, and Appendix B: Questionnaire)

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Judy Rene Sims

Communication educators in both traditional and non-traditional classroom settings can benefit from knowledge about new teaching strategies and effective methods of feedback for their students. As Quigley and Nyquist (1992) claim, "providing feedback is central to the process of communication and central to instructors' efforts to facilitate student learning" (p. 324).

The traditional basic speech course that is offered in many universities provides practical instruction in techniques and skills to enable students to speak more effectively in public settings. Typical assignments in such courses require students to prepare and deliver speeches (see for example, McKerrow and German, 2000, p. 11; Jaffe, 2001, p. 18). In order to provide feedback, some instructors present students with only a written evaluation or rating instrument, while others may audiotape or videotape the speeches and accompany the tapes with some sort of written feedback (Hinton & Kramer, 1998; Quigley & Nyquist, 1992; Bankston & Terlip, 1994).

Indeed, one of the most effective forms of feedback may be for students to see themselves on tape. Video-self analysis has been used for feedback in a number of areas; for example, it has been used by instructors to evaluate their own teaching performance (Hougham,

1992; Krupnick, 1994; The Hong Kong University of Science and Technology, 2002), conductors to improve their conducting techniques (Byo, 1994), golfers to perfect their golf swing (Guadagnoli, Davis, & Holcomb, 2002), tennis players to improve their serve (Yandell, 1991), and even by cyclists to gain valuable information about their riding techniques (Cuerdon, 1990).

Courses in disciplines other than communication also have used video-self analysis to provide feedback to students. According to Quigley & Nyquist (1992), the University of Washington School of Law used "collaborative video critique to assist students to practice advocacy skills in a simulated judiciary setting" (p. 326; Quigley, 1986). Social work classes also have used video in "the teaching of interviewing and counseling skills, such as using open-ended questions, paraphrasing, and summarizing" (Quigley & Nyquist, 1992, p. 327; Quigley, 1986). And, the use of video feedback in a dentistry course has provided students with the opportunity "to learn about the importance of specific verbal and nonverbal behaviors in their communication with patients" (Quigley & Nyquist, 1992, p. 327; Davis et al., 1988).

There are a number of ways in which course instructors can provide students with audio or videotaped copies of their performance. For example, basic course instructors can require students to bring a tape to class for each of their speeches so that the students then can have their own copy. Although this method can be effective, it does have its drawbacks. For example, a student may forget to bring a tape to class; in addition, the process of switching the tapes between speeches can utilize valuable class time. Instead, instructors can videotape the speeches consecutively on one or more tapes and

then make the tapes available for viewing in the campus library.

Although video self-analysis can be used for feedback in the basic speech course, some students consider it inconvenient in our fast-paced society to take the time either to find a VCR to playback their speech or to visit the library, cue up the tape, and view themselves. A solution to this problem of inconvenience may reside in a new technology known as streamed media. Streaming video or web-casting generally refers to motion video with accompanying audio that is delivered live or asynchronously and is available at the click of a mouse on a website. Although the screen size used to observe streaming video is considerably smaller than the screen size used for the viewing of traditional VHS videotape, streaming video offers numerous benefits including convenience, privacy, and the attractiveness of modern technology. This paper thus examines how the Internet-based resource of streaming video can be used by communication educators as a method of feedback for students in the basic speech course.

In order to understand the effectiveness of streaming video as a method of feedback for students in the basic course, it is useful to review the literature concerning (1) the pedagogical benefits of video self-analysis in the basic speech course, in communication labs, and as a component of the Speech Portfolio, (2) the pedagogical benefits of computer use and online instruction, (3) research regarding the use of streaming video in the basic course as a teaching strategy and method of feedback for students, and (4) other current uses of streaming video.

PEDAGOGICAL BENEFITS OF VIDEO SELF-ANALYSIS

Quigley and Nyquist (1992), who describe video as a "tool with considerable power," examine the opportunities for learning that video can create in the performance course (p. 325). The authors suggest that the use of video feedback provides potential benefits including the opportunity to (a) "adopt a role similar to that of observer, (b) to identify or emphasize particular skills, (c) to receive feedback about specific skills...and (d) to compare different performances" (p. 325; see also, Frandsen, Larson, & Knapp, 1968).

Quigley and Nyquist (1992) also report that "research supports the idea that video technology is effective [in the basic speech course] when used in conjunction with an instructor's constructive feedback" (p. 325; Deihl, Breen & Larson, 1970; McCroskey & Lashbrook, 1970).

According to Hinton & Kramer (1998), research conducted by Bankston and Terlip (1994) revealed that the use of videotape feedback in the basic communication course appeared to have "positive effects on students' perceptions of the quality of their speeches, and resulted in perceptions that more closely matched instructors" (p. 152).

Research conducted by Hinton and Kramer (1998) examined whether having students privately watch their own videotaped speeches affected their self-reported levels of communication competence and speaker apprehension. Results from the data, which were collected from students enrolled in six sections of a public

speaking course, indicated that the videotape feedback "helped those with low competency levels to gain more confidence in their communication skills than those with high competency levels" (p. 158). According to the authors, "those with the most to gain (low competencies and high apprehensives) reported relatively larger improvements while those with the least to gain (high competencies and low apprehensives) reported limited improvements or even declines" (pp. 157-158). As the authors state, "this suggests that the basic course, and the use of the videotapes, provides [sic] the most benefit for those with the most need" (p. 160).

A review of the literature also revealed the use of videotape feedback in university communication labs or speech centers designed to assist students in the development of their public speaking skills. For example, in the University of Richmond, Virginia speech center, student speeches are video-recorded, and the tapes are reviewed later with the student by a consultant (Hobgood, 2000). Students are encouraged to videotape their presentations to develop a kind of visual resume of their speeches. According to Hobgood (2000), "as the student compiles...speeches over the course of an undergraduate career, it becomes possible to track progress, and note the need for improvement where necessary, according to the student's own aims for proficiency" (p. 346). Thus, as speech centers and communication labs integrate the use of video self-analysis as part of their program, the practice clearly offers some benefits for the students.

Jensen and Harris (1999) discuss the use of videotape and video self-analysis as a component of the Public Speaking Portfolio. The authors conclude that using videos alone or in combination can encourage students

toward mindfulness — that is — a state of mind in which the student actively draws distinctions, makes meaning or creates categories (Jensen & Harris, 1999, p. 211 and 225; Langer, Chanowitz & Blank, 1985).

PEDAGOGICAL BENEFITS OF COMPUTER USE AND ONLINE INSTRUCTION

A review of the literature regarding the benefits of computer use and online instruction for students suggests that computer use may actually help motivate students (Morris & Naughton, 1999). And, Mills (1998) claims that "online students show better motivation, better learning, and higher optimism than onground students" (Shedlestsky & Aitken, 2001, p. 212).

STREAMING VIDEO IN THE BASIC COURSE

The literature, however, revealed a lack of research about the use of streaming video (web-casting) as a teaching strategy and method of feedback for students in the basic course. Research in the use of such educational technology is needed. In fact, a Web-based Commission that included representatives from the U.S. House and Senate, as well as educators, met in 2000 to study Internet-based education and called for expanded research on educational technology (Woodall, 2000, p.1). The Commission concluded that "the power of the Web to transform learning [is] so vital to the nation's economic future that the country should resolve to provide schools with high-speed Internet access with the same determination that fueled the space race" (Woodall, 2000, p.1).

OTHER USES OF STREAMING VIDEO

The literature did reveal numerous other current uses of streaming video including the web-casting of county board meetings (Linn, 2001), travel destinations (Williams, 2001), instruction (Berger, 2001; Creighton & Buchanan, 2001; Gussow, 2001; Hanss, 2001; Hochmuth, 2001; Van Horn, 2001; Bates, 2000; Mortensen, Schlieve & Young, J., 2000; and Saxon, 1999), British political speeches (*M2 Presswire*, 2001), historical storytelling (*Business Wire*, 2001), corporate messages (Foley, 2001), press conferences (Goldman, 1999) news clips (Lasica, 1998) and a university commencement (Dupagne, 2000).

In sum, the literature suggests numerous pedagogical benefits of video self-analysis for students enrolled in a performance or basic speech course, as well as motivational benefits associated with computer use and online instruction. Although the literature addressed numerous uses of streaming video, no studies were found exploring the use of streaming student speeches as a teaching strategy and method of feedback in the university basic speech course. Such research is needed and could provide university educators and others with valuable information concerning the nature and effectiveness of Internet-based education. As many universities are currently positioning themselves to provide digital media solutions campus wide, this research complements such efforts.

The present study therefore was designed to explore the nature and effectiveness of the video streaming of student speeches on the Internet as a method of feed-

back in the basic speech course. The following research questions thus were posited: (1) What percentage of students in a basic speech course would choose to view their speech on the Internet, if given the opportunity? (2) Of the students who would choose to view their speech on the Internet, where would they view it, e.g., a computer lab on campus or home computer, etc.? (3) If students had the opportunity to view their speech on the Internet and on a VCR in the campus library, which medium would they prefer? (4) Which qualities (28k to 56k vs. 100k to 768k) of streaming video would the students use? (5) Of the students who choose to view their speech on the Internet, what do they think about the effectiveness of it as a method of feedback?

METHOD

Participants

The population for this study was composed of a total of 80 undergraduate university students enrolled in three sections of "Fundamentals of Speech," a basic speech course[1] at a mid-western university; all 80 of the students had an equal chance of being included in the research study, which was conducted over a period of three semesters. Of the 80 students, 73 students (91%) chose to participate — that is — complete a questionnaire. The random sample[2] thus included 25 students from a summer 2001 basic speech course, 21 students from a fall 2001 basic speech course, and 27 students from a spring 2002 basic speech course. The sample consisted of 46 (63%) women, 25 (34%) men and two students who did not report their gender.[3] The sample included 68 Caucasian-Americans, two Hispanic-Ameri-

[1] The basic speech course, "Fundamentals of Speech," is defined in the university catalogue as "Fundamentals of effective public speaking from both speaker and listener perspectives. Preparation, presentation, and evaluation of student speeches. Special attention given to topics related to cultural diversity" (*University of Wisconsin-Eau Claire 2002-2003 Catalogue,* p. 86).

[2] According to Frey, Botan and Kreps (2000), "random sampling involves selecting a sample in such a way that each person in the population of interest has an equal chance of being included" (p. 126). As all 80 students in the population of interest were provided with the opportunity to participate in the research study, that is, complete the survey questionnaire, then the sample can be described as random. All members of the population of interest were administered a questionnaire; all 80 members of the population had an equal chance of being included in the study. The students were informed that they were not required to participate in the study. Only seven of the 80 students chose not to participate.

[3] The sample included 63% women and 34% men; these percentages closely resemble the parent population of the students enrolled in three sections of the "Fundamentals of Speech" courses from which the data were gathered during the three semesters when the research was conducted. Sixty-five percent of the parent population were women and 35% were men. It should be noted, as indicated previously, that two (3%) of the students in the sample chose not to report their gender.

The percentage of women and men in the sample also closely resembles the percentage of women and men attending the University of Wisconsin-Eau Claire (UW-Eau Claire) during the time when the data were gathered. According to Gilboy (2002), 1723 women and 820 men attended the UW-Eau Claire during the summer 2001; 6395 women and 4241 men attended the UW-Eau Claire during the fall 2002, and 5837 women and 3926 men attended the UW-Eau Claire during the spring 2002. Thus, when the data were gathered, a total of 61% of the students who were attending the UW-Eau Claire were women, and 39% of the students were men.

cans, one Latino (Colombian), and two Asian-American (Hmong).[4]

All of the students were treated in accordance with the ethical standards outlined by the university's Institutional Review Board; the students were briefed about the research and provided with a consent form. Issues concerning anonymity and confidentiality were addressed. The students were informed that the Internet site to which their speeches would be posted was protected and could be accessed only with a password and web address. Students from the fall 2001 and spring 2002 courses also were asked to sign a form in which they granted permission for their speech to be posted to the protected Internet site.

Apparatus and Procedure

A VHS video camcorder, located in the back of the classroom, was used to videotape the speeches from the first assignment of the semester; the assignment required the students to deliver an informative speech of self-introduction. The speeches were recorded consecutively on one or more tapes.

The videotapes were then delivered to the university's Web Development office, where a student worker digitized, compressed and posted the speeches to the protected web site, which was developed especially for the speech course. The posting process usually required at least one day. The speeches were posted in two different qualities of streaming video, including 28k to 56k

[4] Data concerning the race and ethnicity of the subjects were gathered from the students speeches, as well as from university records sent to the instructor.

and 100k to 768k. A separate file was created for each round of speeches. For example, a file was created for the first seven speeches, and a new file was formed for the next set.

After the speeches were posted, the students had the opportunity to view their speech on the Internet by accessing the web site. In order to access the web site, the students were provided with a password and the website address. Students with passwords were then able to access the site and see themselves, as well as the other student speakers in the class. The students could access the Internet from a computer lab on campus, their home computer or a computer located at another location.

It should be noted that each videotape also was dubbed at the campus Media Development Center, and each copy was placed on reserve in the campus library. Students were informed that they could view their speech on videotape in the library or by means of the Internet.

Students were advised that some of the best feedback they could receive would be for them to see themselves. Students thus were told to view their speech — on the Internet, in the library or both — and then prepare a list of at least three speech goals, based on their viewing, that they would like to work on during the semester. The goals were to address specific speech behaviors; for example, posture, diction, and eye contact. Students were notified that their goals would be distributed to the class on a list to be used later by their peers and the instructor during speech critiques (see Appendix A). It should be noted that the students also were provided with written comments about their speech from the instructor; the feedback, prepared in

the form of a rating instrument, was presented to the students in the class period immediately following their speech.

At the end of the semester, the students were administered a survey questionnaire (see Appendix B). The purpose of the questionnaire was to gather data to understand the effectiveness of the streamed speeches as a form of feedback and to gather data regarding their attitudes, opinions, and behaviors related to the video streaming of their speeches. The questionnaire, which was composed of ten questions (open-ended and close-ended), required only about five minutes to complete. Students were given the option of completing the questionnaire in class or at home.

Summary statistics (e.g., frequency counts and percentages) were used to calculate the data collected from the closed-ended questions. The qualitative data were reviewed and grouped according to common themes.

RESULTS

Of the 80 students who were administered the questionnaire, 73 or (91%) responded. The results below are organized according to the research questions.

1. **What percentage of students in a basic speech course would choose to view their speech on the Internet, if given the opportunity?**

According to the survey results, a strong majority or 62 of the 73 students (85%) chose to view their informative speech on the Internet. The 11 students (15%) who did not view their speech on the Internet explained their behavior with one of the following reasons: (1) "I couldn't get it on my computer, so I went to the library to view it there," (2) "I don't have a computer," (3) "I tried, but I didn't know how to use it; it was confusing," (4) "I wanted to see it as soon as possible, so I went to the library," (5) "My password would not work," (6) "I ran out of time; I did not view it at the library either," (7) "Technical difficulties associated with the Internet prohibited me from accessing my speech," and (8) "I don't have a computer in my room, and I did not want to view it in the lab."

2. **Of the students who viewed their speech on the Internet, where did they view it, e.g., a computer lab on campus or home computer, etc.?**

One-half (50%) of the students who viewed their speech on the Internet indicated that they had watched their speech from a home computer, and 44% indicated they had observed their speech from a computer on campus. The remaining 6% of the students indicated an "other" option and explained their behavior in one of the following ways: (1) "I viewed my speech at home and on campus," (2) "I viewed my speech from a computer in my boyfriend's home," (3) "I viewed my speech on the computer in the dorm."

3. **If students had the opportunity to view their speech on the Internet and on a VCR in the campus library, which medium would they prefer?**

Students had the opportunity to view their informative speech on the Internet and on a VCR in the campus library. Of the 73 students who completed the question-

naire, a majority (71%) reported that they chose not to view their speech on a VCR in the campus library.

As indicated previously, 62 of the 73 students (85%) viewed their speech on the Internet; of the 62 students, only 20 students (32%) viewed their speech in both places (the library and the Internet). Eleven of the 20 students (55%) who watched their speech in both places preferred the Internet to the VCR in the library. Four of the 20 students (20%) who viewed their speech in both places, did not have a preference. None of the students indicated that they preferred only the library; the remaining students did not respond to the question.

Those students who preferred the Internet focused their comments on accessibility, ease of access, and the opportunity to share their videotaped speech with their family. Examples of their comments included the following: (1) "Much easier access through the Internet and a lot less hassle, " (2) "I preferred the Internet because it was more easily accessible, and my family members could watch my speeches and critique me, as well," and (3) "It is more accessible than going to the library."

4. **Which qualities (28k to 56k vs. 100k to 768k) of streaming video would the students use?**

One-half (50%) of the students who accessed their speech on the Internet stated that they had viewed their speech using 100k to 768k. Twenty-four percent of the students indicated that they had viewed their speech using 28k to 56k, and 21% of the students indicated that they "did not know." The remaining 5% of the students clarified that they had used both qualities of streaming.

5. **Of the students who choose to view their speech on the Internet, what do they think about the effectiveness of it as a method of feedback?**

The participants who observed their speech on the Internet were asked to comment about the effectiveness of streaming video as a method of feedback.[5] The predominant themes expressed in a majority of the comments focused on convenience, ease of access, and privacy. Examples of their comments included the following:

- "I think this is a very effective method. For me, it was more convenient to get online than to check out a videotape at the library. Without this, I most likely would not have watched my speech at all" (Geissler, 2001).
- "I liked it because it was fast and easy. I could do it on my own time, whenever it was convenient and wherever I had computer access. I have a child, and it is difficult to find time to go to the library; I really liked the fact that I could view myself and others from my own home" (Sisson, 2001).
- "I found streamed speeches to be a very effective method for feedback because it allowed any number of students to view the results at the same time. Also, the fact that they are available for

[5] The survey questionnaire, which requested the student's name, also requested approval to use their name with their comment. If a student did not wish to have his or her name associated with their comment, they had the option of checking "no."

viewing 24/7 with no time limit is very beneficial" (Pazdernik, 2001).

- "I thought the Internet viewing was beneficial because it was convenient, efficient in timing (posted soon after speeches given) and nice that we could use our technology to its full potential" (Reichenbach, 2001).
- "It was nice to be able to just log on and view my speech. There was less hassle involved and made me more likely to view my speech" (Johnson, C., 2001).
- "I had never used the Internet for a purpose such as this! It was great to be able to see myself and learn from my performance. It was a very accessible and reflective way to better my speaking skills" (Blommel, 2001).
- "I think it is a good tool for feedback It's great to get it from professors and students, but personal feedback works the best" (Day, 2001).
- "It is easy to access. It allows students to watch themselves and become more aware of their speaking habits" (Erickson, 2002).
- "I liked the fact that it was very accessible. It was neat to see myself on the computer, and it was much easier than to track down a tape and cue it to the right spot. With the Internet, all I had to do was type in an address and password to view myself" (Curran, 2002).
- "I enjoyed being able to view it at home with no one else around. It was much more convenient, and I may have not viewed it, if I did not have that option" (Meindel, 2002).

- "I thought it was a very effective method of feedback. I was able to see and hear things I was unaware of doing, as well as view what my teacher and classmate critiqued me on" (Mensing, 2002).
- "I believe that viewing yourself on the Internet is very effective. Often times it brings to your attention speech behaviors — positive or negative — that you did not know about. Also, because computers are highly available, Internet streaming is convenient" (Wells, 2002).
- "I really liked the convenience it provided for me, rather than having to go to the library to pick up the video and viewing it there" (Vue, 2002).
- "It is much more convenient to watch it on the Internet, because you can do it at home and not have to hassle with the Center for Reserve and Instructional Media in the library" (Moser, 2002).
- "This was an extremely convenient form of feedback. It allowed me to view my speech in privacy, without having to be self-conscience about those around me" (Lutz, 2002).
- "It is nice because you can view it in private and get to hear and see yourself talk. It helps to eliminate your own view of yourself and replace it with what others see" (Seider, 2002).
- "I believe there is great value in being able to access my speech so easily. This method of feedback is very effective, because it was so easy to access. I learned a lot from watching myself speak" (Hattara, 2002).

Additional data concerning the effectiveness of viewing one's speech on the Internet as a form of feedback was provided when the students were asked, "What, if any, other comments would you like to share about streaming student speeches on the Internet?" Two major themes emerged from the data; the students frequently revealed their pleasure in being able to share their speech with their parents, and they commented on the value of using new technology as an educational tool. Examples of such comments include the following:

- "It is a great idea. I even sent my mom the link so she could see what I am actually doing in college" (Kopietz, 2001).
- "Streaming students speeches on the Internet gave us the opportunity to share the website address with our parents so they could view them as well. Personally, my parents thought it was great to watch me give a speech; they were very proud" (Musil, 2001).
- "Keep it up! My mom enjoyed watching my performance, also!" (Blommel, 2001).
- "I believe that this practice fully utilizes all tools that are available to the university in a technologically advanced society. It's great! (Tollison, 2001).
- "It is important for students to interact with different technologies" (Baily, 2001).
- "I think it is an excellent idea. It offers a relatively convenient way to view speeches and — unlike a video — it is accessible at all times" (Nordrum, 2002).

- "For students with little free time while on campus, the streaming is extremely convenient. That way students can watch themselves while they are at home, school or any place that has Internet access" (Erickson, 2002).
- "I have viewed speeches from previous classes on tape and found it to be very helpful. But being able to view them on the Internet was a lot more convenient" (Mensing, 2002).
- "I was able to show my family the speech as well, and they were glad to be able to see something I was doing at school" (Wells, 2002).
- "Rather than having to fast forward to view myself, I could just click on the speaker number and avoid any hassles with videos" (Vue, 2002).
- "If you are like me, you would rather be at home than in the library. If you are at home and have the Internet, you can watch yourself at your leisure and see what you need to improve on for the next speech" (Moser, 2002).
- "This is a great way for students to view themselves. It is an intimate and inviting way for individuals to critique their speech, without being intimidated by having peers look on" (Lutz, 2002).
- "I think all the speeches should be available on the Internet" (Lichty, 2002).
- "I think it is a good idea as long as the student has the option of putting their speech on the Internet. It was a big help for future speeches" (Guspiel, 2002).

The participants also provided additional data concerning the effectiveness of viewing one's speech on the Internet as a form of feedback when they were asked if they "agreed" or "disagreed" with the following statement: "Students in future speech classes should be given the opportunity to view their speeches on the Internet." According to the results, a strong majority or 70 students (96%) of the participants "agreed" with the statement. The remaining 4% of the participants did not respond to the question.

DISCUSSION

Validity

As Frey, Botan and Kreps (2000) make clear, "the most important characteristic of a sample is not its size . . . but its similarity to its parent population (p. 125). Seventy-three of the 80 members of the parent population in this study chose to participate in the research. As all members of the population were administered a questionnaire and were afforded an equal chance to be included in the study, the sample can be described as random.[6] And, as a random sample is the best guarantee of a representative sample, then evidence exists to claim the sample is representative of the parent population (Frey, Botan, & Kreps, 2000, p.126).

Evidence of representativeness also is evident in the percentage of women and men in the sample. The sample included 63% women and 34% men; these percentages closely resemble the parent population of the students enrolled in the "Fundamentals of Speech" courses during the three semesters when the research was conducted.[7]

[6] See footnote number two.

The percentage of women and men in the sample also closely resembles the population of students enrolled at the university during the time when the data were gathered.[8] Thus, as evidence exists to claim that the sample is representative, this proof can be used to argue that the research meets some of the requirements of an externally valid study.

The study also is strong in measurement (content) validity, as the measurement instrument — the survey questionnaire — reflects the attributes of the concepts being investigated. All of the questions — "on the face of it" — accurately reflect the concept being investigated (see Frey, Botan & Kreps, 2000, p. 116). That is, the questions appear to inquire about the students' experience with the video streaming of their speeches.

LIMITATIONS

The sample size (73) is not large; however, as indicated above, the most important characteristic of a sample is not its size but its similarity to the parent population. And, as stated previously, evidence exists to argue that the sample is representative of the parent population.

It also should be noted that the study did not assess the students' predispositions toward Internet use. As some students are more computer literate than others,

[7] See footnote number three.

[8] See footnote number three.

it is important to consider the potential effect of this variable on the results of this study.

CONCLUSIONS

It is clear from the results of this study that a majority of students enrolled in basic speech courses from which the data were gathered chose to view their speeches on the Internet, when provided with the opportunity. Even when offered the option of viewing a speech on videotape in the campus library, students favored watching their speech on the Internet.

Previous research has suggested numerous benefits associated with video self-analysis as a method of feedback in the basic speech course; indeed, one of the most effective forms of feedback may be for students to see themselves (Quigley & Nyquist, 1992; Frandsen, Larson & Knapp, 1968). If that feedback can be provided via a medium that students find easy to access, convenient and stimulating, and, if that feedback can be used in conjunction with constructive instructor comment, "connected" critique from friends or family and some kind of self-critique or goals assignment, then the potential for the effectiveness of that feedback should increase. Students, in fact, may prefer the accessibility, convenience and stimulation of streaming video on the Internet to videotape for that feedback.

The medium of their generation, the Internet is convenient and easy for students to access. As Shedletsky and Aitken (2001) suggest, "of the benefits for online instruction, one of the main advantages for students is the flexibility of online instruction" (p. 210). And, as Jadali

(1991) claims, students can learn any day, any time, anywhere. Students are stimulated by and enjoy utilizing new technology as an educational tool, and when that technology also is flexible and convenient, as is the Internet, then the possibility for learning is enhanced.

The most remarkable finding in this study was the discovery that the students chose to e-mail the web address and password to their parents, friends, and family members so that others could share their experience. This kind of "connected learning," in which students can learn from sharing their performance via the Internet with others, obtain critique from those others and then make connections between that feedback and the comments they receive in class, is an excellent example of a classroom with no boundaries, a classroom of the future. Bill Gates, Chair and Chief software architect of Microsoft, envisioned such a classroom of the future. Gates described the future classroom as one without boundaries and one that invites a sense of involvement; Gates explained it as "'connected learning,' where it's parents, students and teachers, not isolated from each other the way we are today" (October 29, 2001, p. 61).

Although the students in this study agreed that the video streaming of their speeches served as an innovative and effective method for feedback in the basic course, the streaming process requires considerable preparation and technical support. As Shedletsky and Aitken (2001) maintain, "Support staff are in control . . . and where technology is concerned, technical support staff can determine whether or not faculty are able to teach successfully" (p. 213). Certainly, in order to successfully stream speeches, faculty will need campus technical support from web development personnel and

computing and networking services. Someone knowledgeable in web development must create a protected Internet site, provide the students with passwords, create the files, digitize the material, post the speeches to the Internet in a timely manner, and post them with the best quality for student viewing.

Cost issues must be taken into consideration, as well. One could use a digital camera to record the speeches, which would allow the files to be compressed efficiently. One also could digitize the material directly to a CD for each student, rather than stream the media over the Internet. However, the cost of digital cameras and CDs for each student would likely exceed most departmental budgets.

Issues related to differences in compression rates that affect the quality of the streamed video also must be addressed. "Higher compression involves eliminating more bits of data so that it can be sent over low bandwidth connections; lower compression eliminates fewer bits of data" (Hillis, 2002). The best and more continuous image is produced by the lower compression rate of 100k to 768k; break-ups and a jerkier image are frequently associated with the higher rate of 28k to 56k (Hillis, 2002). Because the university web development personnel pay particular attention to the sound quality of the streamed media, the audio synchronized well with the video at both rates; thus, the audio did not prove to be problematic.

It is important to understand, however, the factors affecting access to the different compression rates. The lower compression rate (100k to 768k) cannot effectively be accessed from an off-campus computer via a dial-up connection; one must have a cable connection — either

on campus or off-campus — to successfully access the streamed media at the 100k plus rate. Although a limited dial-up connection is available at no cost to the students, a fee is required for a cable connection. One-half of the students in this study stated that they viewed their speech at the lower compression rate (100k to 768k). Students who were required to dial-in to connect with the Internet were forced to view their speech at the higher compression rate (28k to 56k); fewer than one quarter of the students reported that they had viewed their speech at the higher rate. Although the students in this study did not comment negatively on the quality of the streamed video or the difference in the compression rates, the economic factor cannot be ignored. Differences in compression rates and speeds, however, most likely will change as the technology develops.

Clearly, the issue of privacy will remain one of enormous concern. Faculty must take action to protect themselves and their students. Signed consent forms are essential and must be obtained from each student. Protected web sites with individual passwords must be created, and it is imperative that students be informed of the limited nature of the protection; that is, although the site is not indexed, not searchable, and can not be reached via any links, the password and web address are information that can be shared with others (Hillis, 2001). Unquestionably, as was evidenced in this study, the protected sites were not entirely protected; the students e-mailed the web address and passwords to others for viewing. It should be noted that one solution to the privacy problem would be to split the speeches into separate files and deliver only the specific speech to the student who performed it; the speech could then be de-

livered via email or on a CD or floppy disk, if the file size were manageable (Hillis, 2001). Although this method would be more time consuming for the person posting the speeches, it would solve the security issues. The student would still be able to share their speech with friends and family; the difference would be that the students would not be able to access the speeches of their peers.

In addition to issues of privacy and controlled access, one also must be aware of the university's policy concerning online copyright and ownership, an area that still is evolving (Shedletsky & Aitken, 2001; Maxwell & McCain, 1997; Salomon, 1999). Although the university at which this study was conducted does not have an online intellectual property policy, some universities may have a campus network policy stating that anything posted on their system becomes the property of the institution. One must clarify, for example, through a signed consent form, the ownership rights of the streamed speeches. As Shedletsky and Aitken (2001) warn, colleges "may or may not allow faculty to protect copyrighted materials" (p. 208).

Modern classrooms reflect the technology of the times. Smart classrooms — equipped with camcorders and computer workstations — allow students to be videotaped with ease, prepare and deliver Powerpoint presentations, and more. Instructors will continue to realize ways to constructively employ use of the Internet in their classrooms. Such use is increasing; the percentage of teachers using the Internet for lessons in 2000 was slightly above 50% (Johnson, D., 2001, p. 56). As many universities are positioning themselves to provide digital media solutions campus wide, streaming

speeches on the Internet can be an effective teaching strategy to use in the basic course. It is convenient, has the potential to promote connected learning, and is strongly endorsed by the students.

When used in combination with connected critique from friends or family, constructive written feedback from the instructor, and some type of self-critique or goals assignment, streaming speeches increases the possibility of stimulating behavior change. Future research should explore in greater depth the ways in which streamed speeches foster connected learning between the student, their friends and family. Future research should explore how, if at all, the use of streamed speeches in the basic course improves students' communication competencies. Although this study was not designed to measure improvement, it did appear that students began to consider more seriously their own impression management and improve their delivery skills. Research measuring the relationship between viewing streamed speeches and improvement in public speaking skills is needed; it could provide university educators with further information concerning the effectiveness of web-casting in the basic course, and it would contribute well to the literature regarding e-learning and Internet-based education. Future research must continue to assess the use and effectiveness of new technologies such as streaming video in the basic course. As participants in a 1990 meeting on the introductory communication course suggested, "technology should not be avoided," and users should "constantly assess their effectiveness and adapt them to [the] changing needs and skills of the students" (Hugenberg & Yoder, 1991 in Hinton & Kramer, 1998).

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APPENDIX A

Speech Goals

Students were told to view their speech — on the Internet, in the library or both — and then prepare a list of at least three speech goals that they would like to work on during the semester. Students were informed that their goals would be distributed to the class on a list to be used later by their peers and the instructor during speech critiques. Note: "XX" has been used to replace the student name.

- XX
  - Don't talk so fast.
  - Don't just look at one person.
  - Try and stay still while giving my speech.
- XX
  - Slow down! Speak more slowly.
  - Decrease to use of "ums" and "ahs."
  - Incorporate pauses in my speaking.
- XX
  - Don't move around so much. Keep my feet planted and don't rock as much.
  - Look less at my visual aid and more at the audience.
  - Be more confident and use fewer "powerless" words and phrases.
- XX
  - Not shift my weight and move my body as much.
  - Speak more clearly with a more interesting voice with pauses and excitement.
  - Use my hands more to draw interest and excitement.
- XX
  - Talk a lot slower.
  - Enunciate my words more clearly.

- Stand up straight & don't lean on one leg.

- XX
  - Limit my "ums" during my speech.
  - Improve my grammar.
  - Stop moving in an inverse wave (forward and backward).

- XX
  - No more "ums" and "ahs."
  - Don't look at the poster as much.
  - Look at the class more using the "Z" method.
  - Don't use notecards as much.

APPENDIX B

Questionnaire: Streaming Students Speeches on the Internet

Check ONE response and provide a comment if appropriate.

1. What is your name? _____

2. You may quote me in a scholarly journal article.

   _____ Yes No _____

3. I viewed my speech of self-introduction on the Internet.

   _____ Yes No _____

4. If you viewed your speech of self-introduction on the Internet, which of the following "qualities" of streaming did you use? (check one response)

   ___ 28k to 56k quality ___ 100k to 768 ___ Don't Know

   Comments?

   _____

   _____

   _____

5. If you viewed your speech of self-introduction on the Internet, where did you view it? (Check one response)

   ____ Computer lab on campus
   ____ Home computer
   ____ More than one place
   ____ Other (please explain) _____

6. If you viewed your speech of self-introduction on the Internet, what do you think about the effectiveness of this method of feedback?

_____

_____

_____

7. Your speech was available for viewing in the UWEC library. Did you view your speech in the library?

____ Yes ____ No

If "no," why? _____

8. If you viewed your speech in the library *and* on the Internet, which did you prefer? (check one response)

____ Library
____ Internet
____ No preference
____ I did not view the speech in both places

Comments?

_____

_____

9. Students in future speech classes should be given the opportunity to view their speeches on the Internet.

____ Agree ____ Disagree

10. What, if any, other comments would you like to share about streaming student speeches on the Internet? e.g., suggestions?

_____

_____

_____