



OPTIMIZING FEEDBACK IN ONLINE COURSES - AN OVERVIEW OF STRATEGIES AND RESEARCH

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Abstract: *This paper reports on two major studies and other related research focusing on the use of audio feedback as a replacement for text-based feedback in asynchronous environments. Previous research has demonstrated that participants in online courses can build effective learning communities through text based communication alone. Similarly, it has been demonstrated that instructors for online courses can adequately project immediacy behaviors using text-based communication. However, the studies described herein indicate that auditory elements strengthen both the sense of community and the instructor's ability to affect more personalized communication with students. In the foundational study, findings revealed extremely high student satisfaction with embedded asynchronous audio feedback as compared to asynchronous text only feedback, with four themes accounting for their preference: 1. Audio feedback was perceived to be more effective than text-based feedback for conveying nuance, 2. Audio feedback was associated with feelings of increased involvement and enhanced learning community interactions, 3. Audio feedback was associated with increased retention of content, and 4. Audio feedback was associated with the perception that the instructor cared more about the student. Document analysis revealed that students were three times more likely to apply content for which audio commenting was provided in class projects than was the case for content for which text based commenting was provided. Subsequent studies validated these findings on a multi-institutional basis and have provided direction for best practices.*

Keywords: *Community of Inquiry, audio feedback, online learning environments, social presence, cognitive presence, teaching presence*

I. BACKGROUND

Critics of online learning have frequently contend that because interactions occur in a disembodied form, a lack of nuance can lead to loss of meaning for participants (Bullen, 1998). As such, it is argued that asynchronous learning is not sufficiently rich in socially mediated practice that Vygotsky (1978) described as necessary to construct knowledge. However, this narrow interpretation of Vygotsky discounts the ability of learners to conceptualize "being" as anything other than a physical construct.

The ability to project oneself through various media, termed social presence, was initially described by Short, Williams and Christie (1976) who proposed that, as critics of asynchronous learning contend, the ability to project verbal and nonverbal information directly impacted the degree to which presence was perceived. However, Garrison, Anderson, Rourke and Archer (2001) and Swan (2002) argued that this may not be the case as learners in online courses appeared to build effective learning communities by projecting their personalities through text alone.

Lombard and Dutton (1997) viewed this creation of a presence in online courses as the ability to project oneself into a virtual environment and not through the media. In an extension of this concept, Laffey, Lin and Lin (2006) described the social element of asynchronous communication evolving as learners come to view their interactions with tasks and tools as being a fluid, integrated process rather than as a series of tasks. They compared this process to a speaker interacting with others

in a foreign language. The more fluent the speaker becomes with the new language the less difficult interactions become. Theoretically, this would mean that the technologies become part of the interaction itself and are therefore not viewed as objects upon which learners have to act to create virtual embodiments (Doursih, 2001).

Gunawardena and Zittle (1997) found that the sense of “being there” was established in the online environment through providing and interpreting emoticons as a replacement for nuance and nonverbal cues. Using a 14 item questionnaire, they found 60% of the variance in student satisfaction was attributable to perceptions of social comfort and presence. Rovai (2002) explained that this type of satisfaction can occur when text based, socio-emotional-driven interactions promote a sense of connectedness among learners in asynchronous learning networks (ALN).

II. CASE STUDY: AUDIO FEEDBACK

Various surveys of online learners indicate that they prefer multimedia over text only presentations of content (Barger, et al, 2002). Given this Ice and colleagues (2007) examined whether applying media other than text to online interactions would be of benefit in projecting teaching presence. The Audio commenting tool in Adobe Acrobat Pro v.7 was used to provide feedback on student assignments (Version 9 is currently available and has the same capability).

2.1 Methods

An online graduate level course, C&I 687: Advanced Teaching Strategies, served as the context for this project. Alternating text-based (6) and audio (5) feedback on assignments in online course. Over 40% of students spontaneously emailed course instructors after the first use of audio commenting– 100% expressing satisfaction with the technique.

Data included surveys (single item on course survey -preference for audio versus text feedback), semi-structured post-course interviews with 27 of 31 enrolled students, and document analysis of students’ final project.

2.2 Results

The surveys indicated that 26 of 31 students preferred the audio commenting over the text-based feedback, 4 students indicated no difference, and 1 student indicated N/A (due to technical problems – defective sound card). Four themes emerged from the transcript analysis of the semi-structured interviews

THEME 1 – Ability to understand nuance (70% of students)

- ❖ Students indicated that they were better able to understand instructor’s intent
- ❖ Humor, encouragement and emphasis were all much more clear

THEME 2 – Feelings of increased involvement (56% of students)

- ❖ Students felt less isolated and were more motivated to participate

THEME 3 – Content retention (44% of students)

- ❖ Students believed they retained audio feedback, and the content to which audio feedback was related, better than text-based feedback and related content.

THEME 4 – Instructor Caring (30% of students)

- ❖ Students felt that audio was more personal than text
- ❖ Comments frequently related to nuance and tone of voice

The document analysis of the final projects (series of thematic integrated lesson plans), showed that students used content for which audio feedback was received approximately 3 times more often than content for which text-based feedback received. This finding relates to the Theme 3 from the semi-structured interviews. In addition, students were 5 to 6 times more likely to apply content for which audio feedback was received at the higher levels of Bloom’s Taxonomy than content for which text-based feedback was received.

Other findings provide insights into the efficiency of audio and text feedback, including the length and “quantity” of feedback. More specifically:

- ❖ Mean time to provide feedback
text = 13.43 minutes; audio = 3.81 minutes
- ❖ Mean quantity of feedback
text = 129.75 words; audio = 331.39 words
(Ice, Curtis, Phillips & Wells, 2007)

2.3 Related Studies

The findings of the above study were confirmed by Oomen-Early and colleagues (2008) who found all themes were prevalent among their participants. With respect to efficacy, this study found that a majority of the students 59% (n = 92) believed audio feedback actually saved them time, however, instructors felt that it only slightly reduced the time it took to provide commentary, most likely because both audio and text were used rather than just one or the other. The majority of students believed asynchronous audio feedback was worth their time, with 88.5% (n = 138) moderately or strongly agreeing that audio feedback was helpful. In alignment with the initial findings of Ice and colleagues (2007), was the finding that 91% (n = 142) of the students found audio feedback to improve their understanding of course content and 82.4% (n = 106) believed it improved the instructor-student relationship.

III. MULTI-INSTITUTIONAL CONFIRMATORY STUDY

Following the initial work of Ice et al. (2007) and Oomen-Early et al. (2008), Ice (2008) accessed a larger, multi-institutional sample for confirmatory purposes. Audio feedback and subsequent surveys were administered at 15 institutions to confirm the previous studies’ findings (levels ranging from Range AA – Ph.D.). Seven Likert-type survey items used for this particular study as well as an open qualitative item to probe for additional themes (Quantitative: n = 1138; Qualitative: n = 607). Table 1 shows the survey item results, which are based on a 5 point Likert scale where 5=strongly agree and 1=strongly disagree.

The surveys indicated that 26 of 31 students preferred the audio commenting

Table 1. Results of Survey Items for Audio Feedback

Survey Item	M	SD
When using audio feedback, inflection in the instructor’s voice made his / her intent clear.	4.53	.652
The instructor’s intent was clearer when using audio than text.	4.48	.587
Audio comments made me feel more involved in the course than text based comments.	4.38	.683
Audio comments motivated me more than text based comments.	4.46	.702
I retained audio comments better than text based comments.	4.31	.568
Audio comments are more personal than text based comments.	4.29	.544
Receiving audio comments made me feel as if the instructor cared more about me and my work than when I received text based comments.	4.38	.617

The results strongly demonstrate that student’s preferred audio over text feedback in relation to clarity, motivation, retention, presence, and level of care provided by instructor. For the open qualitative item no additional themes revealed by analysis of qualitative data. Moreover, no difference among learner or institutional types was found. However, one note of interest that requires further study was that there was some indication that the technique may not be as effective if the instructor is not a native speaker.

Finally, the audio feedback items were run in relation to the COI instrument in the summer of 2007. A comparison between the multi-institutional COI instrument validation (see Swan, Richardson, Ice, Garrison, Cleveland-Innes & Arbaugh, 2008 for further details) and responses from the aforementioned study that received audio feedback was performed in an effort to explore the impact of audio feedback on the COI items.

Table 2. Comparison of COI Multi-institutional Data to Audio Feedback Study*

	COI data Group (n=1138)	Audio Fdbck Group (n=31)
Teaching Presence		
The instructor was helpful in identifying areas of agreement and disagreement on course topics that helped me to learn.	4.12	4.43
The instructor encouraged course participants to explore new concepts in this course.	4.44	4.58
The instructor provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.	4.28	4.57
Social Presence		
Online or web-based communication is an excellent medium for social interaction.	3.90	4.27
Cognitive Presence		
I felt motivated to explore content related questions.	4.31	4.55
Reflection on course content and discussions helped me understand fundamental concepts in this class.	4.37	4.49

**For each of the items addressed there was a significant difference ($p > .05$) in responses*

The results presented in Table 2 would appear to indicate that students who were enrolled in the course that utilized audio feedback rated the COI items examined higher than the students in courses without audio feedback. This, in turn, would appear to indicate that the use of audio feedback in online courses can increase students' perceptions of instructors and their roles, sense of presence, and their understanding of course content. Further study is necessary to validate these findings. (Ice, 2008)

IV. RELATED RESEARCH

Simonsson and colleagues (2008) explored the use of audio feedback for remote dissertation advising. The study found that audio was perceived as being extremely useful for providing feedback related to complex themes requiring higher order thought. In contrast, students found text to be more efficacious for providing highly mechanical feedback such as APA style, syntax and document structure. An unexpected finding was that the use of audio accelerated the dissertation writing process as students did not have to wait for scheduled appointments or commute to campus.

In a study of the utilization of audio feedback in blended literacy courses, Swan and colleagues (2008) found that audio feedback allowed for more detailed responses, characterized by increased attention to assignment content and subject matter. Additional exploration revealed that the audio feedback examples contained not only more information but richer language. However, there are indications that the use of audio may require a slight paradigmatic shift on the part of both students and instructors.

Finally, tentative findings from recently completed research by Ice, Swan-Dagen and Curtis (2009) indicate that audio may be most powerful when combined with text and visual markups.

Specifically, brief positive affirmations and highlighting can be used to reference a specific area of a student's work product with audio used to elaborate. This is consistent with initial indications by Oment et al. (2008) and is grounded in multimedia learning theory (Mayer, 2001).

V. SUMMARY

The research on the efficacy of audio feedback is compelling. The ability of the instructor to more effectively project intent and nuance in asynchronous communications appears to significantly impact students' ability to synthesize knowledge, as well as their overall satisfaction with the educational experience. To date the technique has proved successful with a wide range of learners in a variety of disciplines, however, more work is needed to insure generalizability. The authors encourage further exploration in which the methodology can achieve an enhanced robustness through integration with emerging Web 2.0 and Software as a Service applications.

Acknowledgements

Acknowledgements go to our research team, Dr. Ben Arbaugh – Professor, University of Wisconsin Oshkosh, Dr. Marti Cleveland-Innes – Associate Professor, Athabasca University, Dr. Sebastian Diaz – Assistant Professor, West Virginia University, Dr. Randy Garrison – Professor, University of Calgary, Dr. Peter Shea – Assistant Professor, University at Albany, State University of New York, and Dr. Karen Swan – Professor, University of Illinois Springfield

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