Evidence Based Library and Information Practice

Research Article

Audio Feedback Project: A Project to Increase Social Presence in a Virtual Library and Knowledge Service

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Received: 4 July 2021 **Accepted**: 23 Feb. 2022

DOI: 10.18438/eblip30006

Abstract

Objective – This research project sought to determine if audio feedback in literature searches can increase the social presence of the library and create a positive view of the library service. It also explored the process of recording and sending audio feedback; tested its practicality, sustainability, and accessibility; and ascertained whether audio feedback enhanced the library's communication, thereby creating a positive attitude toward the library and its services.

Methods – The research was conducted in a small virtual library and information service. The research sample consisted of all library users and clinicians who requested a mediated literature search between July 2019 and July 2020. All participants were sent an audio commentary on their search results, recorded by the librarian, and were asked to respond to an online questionnaire. The questionnaire consisted of five statements. The study participants indicated their agreement or disagreement with each statement on a five-point Likert scale.

Results – The researcher sent out 96 audio commentaries, generating 31 responses to the questionnaire. The results indicated that users felt the audio feedback improved their understanding of the results of their inquiry, made them feel more comfortable about using the

library, enhanced their experience of communicating with the library and provided a better experience than just receiving an email. The responses broadly supported the contention that audio commentaries created social presence and generated a positive view of the library.

Conclusion – The researcher found that delivering audio feedback was both practical and sustainable. Some consideration was given to individual learning styles and how these made audio or text feedback more or less effective. Specifically, audio feedback enhanced communications better than an email alone.

Introduction

During the recent COVID-19 pandemic, requirements for social distancing and home working have accelerated a trend toward virtual communication between users and librarians. This was underpinned by improved meeting software and its wide availability on smartphones, tablets, and laptop computers. However, these forms of networked communication are synchronous, requiring both users and librarians to be present at the same time. This may be the preferred channel for some users, but there are factors that mitigate the simultaneous availability of users and librarians. These could include time pressures caused by increased workload, shifts in flexible and home working patterns, and the systemic pressures caused by unplanned events such as COVID-19. For these reasons, some users may prefer asynchronous forms of communication, which is not time dependent, and both sender and receiver do not have to be present simultaneously. Examples of asynchronous communication include email and web-forms for search requests.

Social Presence

In this project, the author drew on the theory of social presence. Originally proposed in the 1970s to apply to what were then new forms of computer-mediated communication (Short et al., 1976), Calefato and Lanubile (2010) defined social presence as:

> the degree to which one perceives the presence of participants in the communication. Social Presence theory argues that media differ in the ability to convey the psychological perception that other people are physically present, due to the different ability of media to transmit visual and verbal cues (e.g., physical distance, gaze, postures, facial expressions, voice intonation, and so on). (p. 287)

Different technologies have different capacities for enhancing social presence. Video conferencing, with a rich range of cues, conveys a higher degree of social presence than a telephone call. Synchronous communications, with the capacity to immediately interact, interrogate, and clarify meaning, convey a greater degree of social presence than asynchronous communications, such as email.

Digital Audio

The author's objective in initiating the Audio Feedback Project, described in this paper, was to explore a simple and effective way to increase the library's social presence in a way that was sympathetic to asynchronous communication between the library and its users. Digital audio was selected because it is a widely used and understood technology that exists in all modern smartphones, tablets, and computers.

Audio is also low cost, as potential creators and users already have the technology they need. In addition, audio files are generally small and easy to play or stream on Internet-connected devices.

Audio Feedback

The researcher used audio feedback on mediated search results, emailed to users. This was an area where complex information was conveyed to users. Enhanced delivery was an added benefit. No literature exists on audio feedback in a library context. However, audio feedback given to students on assignments was used in higher education and has generated a small body of research literature that has informed this project. There were broad practical similarities in the process of giving feedback on a search versus an assignment. However, there were also pedagogical differences which were explored briefly in the literature review. In the case of the library, feedback was typically delivered through a digital audio file (.wav), either sent via email, or by sending a unique link to a file available in the cloud.

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The Audio Feedback Project was conducted by the librarian, who is the only member of staff. LKS ASE is a virtual service operated via a website, email, social media, and phone. LKS ASE has a national footprint that covers eight of the ten ambulance services. LKS ASE users typically do not engage in synchronous communication with the library, for example, arranging to meet in person or talk on the phone, because of the challenges of distance and working busy shifts on ambulances or in emergency call centers. Most communication is asynchronous, via email. The origin of this project was a desire to provide better service than can be achieved by email alone.

Review of the Literature

This project was mainly informed by research in the educational literature that focused on audio feedback to students. These were mostly small-scale studies, in which researchers looked at student and instructor attitudes to audio feedback, its effectiveness when compared to written feedback, and its role in delivering formative and summative assessment. While the pedagogical discussions of assessment were not applicable to this project, the educational studies provided both practical examples of implementation of audio feedback and valuable theoretical insights. It is noted that the majority of studies included here were published between 2002 and 2017, with fewer recent studies, possibly indicative of the integration of these technologies into virtual learning environments.

Time and Efficiencies of Audio Feedback

The majority of researchers found that delivering audio feedback did not take more time than delivering feedback as text (Brearley & Cullen, 2012; Cann, 2014; Rotheram, 2009; Sarcona et al., 2020). There were some qualifications. Rotheram (2009) noted that speed of delivery of feedback increased with experience in using the technology and recording audio feedback. One group of researchers found that delivering feedback through virtual learning environments (VLE) added more time and complexity to the procedure than sending a file or a link to an audio file (Carruthers et al., 2015). However, other researchers using a different software found no effect, finding that VLE were highly efficient and especially suited to dispersed student communities (Lunt & Curran, 2010). In three studies, researchers compared audio feedback to written feedback. They found that in one case, one minute of audio feedback equated to six minutes spent on written feedback (Lunt & Curran, 2010). In another study (Cann, 2014), the researcher estimated that it took five minutes to record a 500 word report. Ice et al. (2007) found that written

feedback took 13.43 minutes and audio feedback took 3.81 minutes, a 75% time savings. The broad implication of these studies was that audio feedback delivered more content in less time than written feedback.

Audio Feedback and Learning Styles

Researchers in two studies make a connection between learning style and audio feedback. Learning styles describe individual preferences for receiving information based on cognitive strengths and weaknesses. Typically, learners are grouped in four categories: visual learners, auditory learners, reading and writing learners, and kinesthetic learners (University of Kansas, 2021). Students who had a preference for an auditory style of learning preferred audio feedback, while students who had a predominantly visual style preferred written feedback. According to Sarcona et al. (2020): "Consideration of students perceived predominant learning styles was reported in this study and found a significant association between students' perceived learning style and type of feedback preference" (p. 57).
In another study, a student aware of their learning styles reported this as a reason for a preference written feedback: "I am a visual learner and prefer the written word" (Morris & Chikwa, 2016, p. 6). Wolstencroft and de Main (2021) looked at the way students engage with written feedback. They found that many students failed to engage with feedback in a written form. In their study, audio feedback significantly increased the number of students who engaged with feedback.

Higher Information Content of Audio Feedback

A number of researchers reported that audio feedback provided a greater level of detail than written feedback (Carruthers et al., 2015; Gould & Day, 2013; Parkes & Fletcher, 2017, 2019; Rawle et al., 2018; Rodway-Dyer et al., 2011). This was a quality recognised by students and instructors. Students recognized this as a strength, attributing a greater depth of understanding to audio feedback. Instructors reported that they were able to provide "more detailed and bespoke feedback to students" (Lunt & Curran, 2010, p. 764).

Personal Nature of Audio Feedback

Researchers who used students as subjects reported that audio feedback felt more personal to the recipient (Carruthers et al., 2015; Lunt & Curran, 2010; Merry & Orsmond, 2008; Munro & Hollingworth, 2014; Parkes & Fletcher, 2019; Rasi & Vuojärvi, 2018; Rawle et al., 2018; Rotheram, 2009).) Wolstencroft and de Main (2021) argued that audio feedback created emotional engagement and personal connectivity between instructors and students. Students reported that hearing the voice of a tutor or instructor was a positive experience, and felt comforting, reducing feelings of isolation in an online environment (Parkes & Fletcher, 2017). In one study, students reported that they felt instructors who used audio feedback were more caring (Ice et al., 2007). Students felt the feedback was less generic and more tailored to their individual piece of work (Hennessy & Forrester, 2014). Researchers also noted that the human voice is more nuanced than written feedback, conveying greater meaning and emphasis (Hennessy & Forrester, 2014; Ice et al., 2007) Students, in turn, reported that audio feedback provided greater clarity than written feedback (Parkes & Fletcher, 2019; Rawle et al., 2018).

Social Presence and Audio Feedback

Several researchers make specific reference to the idea of presence in audio feedback. In their study, Moore and Wallace (2012) found that 30% of the students they surveyed identified the presence of the

tutor's voice as a benefit of audio feedback. Ice at al. (2007), in their study, argued that enhanced social presence increased student satisfaction with the course or programme: "We believe that audio feedback should be considered a means by which to increase positive perceptions of the quality of instructor interactions and, by extension, social presence in ALN [Asynchronous Learning Network]" (p. 19). Parkes and Fletcher (2019) also argued that social presence created by audio feedback provides instructors with "the opportunity to engender a greater sense of connectedness with their students" (p. 452). Although library-based studies were absent, it might be reasonable to assume that audio feedback to users would create both a sense of social presence and greater user satisfaction in encounters with the library service.

The Library Literature

Research on asynchronous communication with library users' centers on the delivery of asynchronous instruction. In higher education, this research responded to the demands of increasing student numbers and the challenges of reaching students through face-to-face instruction. Recent studies in healthcare have cited similar changes in working practice relating to service delivery during COVID-19, as physical libraries closed to users. There was no substantial literature on asynchronous audio feedback in libraries. However, one researcher, taking a similar approach to the Audio Feedback Project, used screen casting to provide answers to user inquiries (Bailey, 2012). Similarly, social presence in virtual communication with users represents a gap in the library literature.

Aims

In this project, the researcher aimed to explore the process of recording and sending audio feedback to test its practicality sustainability, and accessibility. The researcher also sought to understand whether audio feedback enhanced a library's communications, creating a positive attitude toward the library and its services where the alternative was just receiving an email.

In this small study, the researcher asked two questions: Does audio feedback in library consultations improve user understanding of the results of their search? Does audio feedback in library consultations increase users' impressions of social presence better than email feedback alone?

Methods

The research was conducted by the author who is the sole member of professional staff for LKS ASE. The researcher was entirely responsible for all stages of the project. Prior to the project all communication about search results was delivered via email.

The research sample is a convenience sample, defined as "nonprobability sampling in which people are sampled simply because they are 'convenient' sources of data for researchers" (Battaglia, 2008, p. 149). In this survey, the convenience sample was all library users who requested a mediated literature search from LKS ASE between July 2019 and July 2020. Library users in this instance are ambulance staff and researchers employed by eight ambulance services in England. No demographic data was collected. It was not recorded whether users had used the library prior to the project. Typically, inquiries were from users who were working and also studying, undertaking continuing professional development, or clinical inquiries. Two of the ten ambulance services, South Western Ambulance Service and London Ambulance Service, were excluded because they were not part of the LKS ASE project. The sample generated 96 audio feedback commentaries sent to users with links to a questionnaire. Of those 96 users who received

a commentary, 31 returned the questionnaire, giving a response rate of 30%. Non-respondents may not have listened to the commentary, or listened to the commentary and chosen not to complete the questionnaire. The results of this project were particular to LKS ASE and were not generalizable.

Data Collection Methods

Inquirers received an email reply from LKS ASE containing a Word document with results of their search as an enclosure, and a brief textual commentary. Inquirers also received a unique link to a .wav file with a spoken audio commentary on their search. The spoken audio commentary was recorded on a work-supplied Android smartphone using a free voice recording application. Commentaries varied between one and a half to three minutes depending on the search complexity. They shared a basic format: an introduction, a description of the search, an analysis of the search results, an offer to supply full text copies of documents, and a request to complete the online questionnaire. Some discretion was used in the format to make it appropriate to the inquirer and the search. The .wav files were shared with inquirers from a public space on the Microsoft OneDrive Cloud platform. In addition, the email contained a request for feedback with a link to an online questionnaire.

The online questionnaire was a simplified adaptation of the Satisfaction Scale (Gunawardena & Zittle, 1997). The questionnaire had five statements in which audio commentary recipients were asked to rate their level of agreement on a five-point Likert Scale from *Strongly agree* to *Strongly disagree*. The questionnaire was created, delivered, and analyzed using the web based LibGuides survey tool.

Results

Most respondents strongly agreed or agreed with the statement "Listening to the audio feedback improved my understanding of the results of my search or enquiry," with a small *neutral* response. The three questions that addressed social presence, asking if users were more comfortable in using the library, felt their experience had been enhanced by audio feedback, and was better than email alone, also elicited mostly *strongly agreed* or *agreed*. However, a slightly higher number of respondents chose *neutral* on these questions.

Of the 96 questionnaires sent out, 31 were returned. It is unknown why the remaining 65 questionnaires were not returned. A limitation of the study is that non-return may have introduced a bias in the results if, for example, non-returners tended to disagree with the five statements. Two respondents indicated they experienced technical difficulties in accessing the audio files. Several respondents contacted LKS ASE directly. However, as the questionnaire was anonymous it is not known if they were these respondents.

Learning points from the author, as a participant in the project, are summarised in the *Good Practice in Audio Feedback* section. From the perspective of lessons learned during the execution of the project, the time taken to record and send audio files reduced significantly with practice; the first recording took longer than the 50th. Reflection during the course of the project, in particular on the key points covered in the recording, enabled improvements that simplified the check list, leaving more time to focus on a personalized individual feedback on the search.

The results of the survey are summarised in Table 1.

Table 1
Summary of Responses to Audio Feedback Questionnaire [a]

Statement	Strongly agree Respondents / Percentage	Agree Respondents / Percentage	Neutral Respondents / Percentage	Disagree Respondents / Percentage	Strongly disagree Respondents / Percentage
Listening to the audio feedback improved my understanding of the results of my search or enquiry.	10 / 32.26%	18 / 58.06%	3 / 9.68%	0 / 0%	0 / 0%
Hearing the librarians voice made me feel more comfortable about using the library in the future.	17 / 58.04%	10 / 32.26%	5 / 16.13%	0 / 0%	0 / 0%
Listening to the audio feedback enhanced my experience of using the library.	15 / 48.39%	12 / 28.71%	4 / 12.90%	0 / 0%	0 / 0%
Overall receiving audio feedback gave me a better experience than communicating via email alone.	16 / 51.61%	10 / 32.26%	5 / 16.13%	0 / 0%	0 / 0%
I was able to listen to the audio file without difficulty.	21 / 67.74%	7 / 22.58%	1 / 3.23%	2 / 6.45%	0 / 0%

n = 31. [a] These statistics were collected between July 2019 and July 2020.

Discussion

Practical, Sustainable, and Accessible

The audio commentaries were recorded with no additional cost to the library service as the hardware and software were already available. The average time taken to record a commentary, transfer to the cloud, copy the unique link to the recording, and to prepare and send an email with the search results, was about ten minutes. The recordings were made in a private office space, but any space with low ambient sound would be practical. The process required no additional training, as the skills required were essentially those required to operate a smartphone. With the exception of the studies that used specialized VLE software, most higher education studies cited in the literature review used a .wav audio file either distributed via email or the cloud. The iteration of these studies over the course of an academic

program, and this project sustained over a year, were evidence that audio feedback is both practical and sustainable.

Audio is the most accessible form of electronic media. Many people listen to podcasts and stream music. The skills, software, and hardware required to listen to audio files are ubiquitous. No studies reported significant problems in end users listening to audio. Problems may be a result of issues beyond the end users' control, such as corrupt files or hardware and software problems. In any communication with users, it is important to offer assistance with accessing files in the rare instances where this is an issue.

Better Than Email Alone

The research took place within a specific context of a virtual library and knowledge service trying to create a stronger connection with users where communications are asynchronous via email. The studies cited in the literature review indicated several benefits that accrue from audio feedback. These included the higher information content of audio and a personal connection when hearing a human voice, which gives a perception of presence in communication, thereby creating a more positive experience of the library.

The statements in the questionnaire were intended to test whether library users felt a greater sense of presence once they had listened to the feedback. The majority of those who responded indicated they strongly agreed or agreed with statements in the questionnaire. Of the respondents, 27 (90%) agreed that "hearing the librarian's voice made me feel more comfortable about using the library." Without overstating this single piece of evidence, the addition of audio added a different and personal dimension to the library experience because the librarian was more present through his or her voice. In addition, 27 respondents (90%) felt they had a better experience using the library after listening to the audio feedback.

Underpinning the project was the challenge of how to enhance communication where the alternative format is email. For physical libraries providing virtual services, email does not reflect the richness of a physical environment. For virtual libraries, email does not project the full character of virtual services. Technology already offers audio and video, not covered in this research. We may look forward to future technologies and software to enhance our communication toolkit. Proactively exploring these response mediums will broaden our repertoire and accommodate the preferences of more users.

Of all respondents, 84% agreed that audio feedback was better than email alone. In addition, their understanding of their search results was improved by listening to the audio.

Learning Styles

Communicating with users face-to-face in person, or even face-to-face online, provides a rich set of cues for users to gather information that can be supported by signposting guides and support materials that typically populate a library website. Where synchronous communication is not possible, there is a risk of an email monoculture which may suit many, but not all, users. This is reflected in two unsolicited free text comments received from participants in the project that highlight the varying effects of feedback delivery on recipients with different learning styles. One respondent said, "I like the addition of the voice debrief, helps for those of us that struggle with reading." Another respondent said, "I would still very

much need the accompanying email to support the message – I'm very much a visual and read/write person."

Learning styles have the potential to affect how library users receive information. The predominance of one form of communication, text, may favour certain styles. The inclusion of multiple forms, text and audio, favors a larger community of library users than either text or audio alone. The unsolicited feedback received in the Audio Feedback Project reflected that some prefer to hear rather than read information. It should be noted that speech to text technology is available with Microsoft and Google word processors. This was not explored in the Audio Feedback Project but provides a quick solution to providing speech and text.

Good Practice in Audio Feedback

Some studies provided summaries of good practice. While many recommendations address pedagogical issues relating to summative and formative feedback, some practical recommendations apply to all audio feedback. These include having a rubric, criteria, or script to guide feedback and ensure consistency (Gould & Day, 2013; Lunt & Curran, 2010). Another researcher advised keeping recordings short (Cann, 2014) to keep file sizes small, although the length should also be guided by the task in hand. Keeping a reflective record of the experiences of using audio feedback was suggested to guide improvements and modifications later (Carruthers et al., 2015). The following guidelines for good practice reflect suggestions from the literature and direct experiences from the Audio Feedback Project:

1. A simple check list that picks up the main headings of your feedback is useful. These act as an aide-memoire to ensure that you cover the main points. The checklist should be designed to fit the specific situation in your library and its users. It should probably be reviewed after repeated use.
2. Make notes of any specific points you want to address in your feedback to prompt you when you make a recording.
3. Keep your recordings short. Try not to exceed three minutes.
4. Operate at the minimum level of technical complication, typically a smartphone and recording app generating a .wav file. This saves you time and ensures that your users can access your files easily.
5. The tone of your recording should be that of an intelligent conversation between adults. A natural and straightforward approach to your recording is best. Avoid humour, long words, and jargon, if you can.
6. Do not edit recordings, record in one take. As the recordings are short it is easy to stop and start again if you make a mistake. This is something that becomes easier the more recordings you do. The first recoding is more challenging than the 96th recording.
7. Listen back to a few seconds of each recording to check volume levels and any interference from background noise that you may not have noticed the first time. Recordings do not need to be perfect, but they must be audible to the user.
8. You may choose to store your recordings so that you can refer to them later. Use a naming convention that makes files easy to retrieve for future reference.
9. Offer an opportunity for users to give your feedback on your recordings. This is generally good practice when evaluating a new service and may generate useful comment and feedback.
10. In your email to users, offer to support any user who experiences technical problems.

Limitations

This study was a small-scale convenience sample and cannot be generalized to cover all healthcare library and knowledge services. However, the conclusions fit in with similar studies on audio feedback in higher education supporting their general conclusions. There is no information from non-respondents to the questionnaire who may have experienced unreported technical problems or simply not listened to the audio feedback. A further larger scale study looking specifically at a healthcare library and knowledge service context would provide a useful validation of this approach. Studies that include an examination of the impact of learning style or the way information is received would be useful.

Conclusion

The shift to being a virtual library service, whether caused by short term factors, such as COVID-19, or longer-term effects of changing working patterns, presents both a challenge and an opportunity to rethink how we communicate with our users. While synchronous communication using video conferencing software provides part of the answer, for asynchronous communication many will use email. The challenge for virtual services is to think creatively about how to use email to build better communication with our users. In this small project, using audio feedback for literature searches enhanced communication with users and delivered richer content that projects the librarian's presence in a novel but accessible way at very low cost. Audio feedback also provided a choice to users who may prefer audio to text.

Acknowledgment

The author would like to thank the Reviewers, the Editor and Copyeditor, and Anne Norman who read and commented on a version of this paper.

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Appendix
Copy of Questionnaire

The questionnaire asked respondents to respond to five statements recording their level of agreement.

1. Listening to the audio feedback improved my understanding of the results of my search or enquiry.
   Strongly agree / Agree / Neutral / Disagree / Strongly disagree

2. Hearing the librarians voice made me feel more comfortable about using the library in the future.
   Strongly agree / Agree / Neutral / Disagree / Strongly disagree

3. Listening to the audio feedback enhanced my experience of using the library.
   Strongly agree / Agree / Neutral / Disagree / Strongly disagree

4. Overall receiving audio feedback gave me a better experience than communicating via email alone.
   Strongly agree / Agree / Neutral / Disagree / Strongly disagree

5. I was able to listen to the audio file without difficulty.
   Strongly agree / Agree / Neutral / Disagree / Strongly disagree