

Using audio feedback for summative purposes

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Abstract

Recent research suggests that assessment feedback in higher education is a problematic area, while audio technology may offer the potential to enhance student learning. This paper reports on a project which was developed to explore the implications of using audio feedback for summative purposes with participants on a work-based learning course at Staffordshire University during 2009. A combination of formative and summative evaluation was conducted; generally the response was positive and aligned to the findings of other researchers, with some significant issues arising in relation to the practicalities involved in producing and accessing the feedback, and the emotional response provoked. Recommendations include further evaluation, with some modifications to meet the needs identified.

Key Words: Audio feedback, Work-based learning, Student learning, Feedforward

Introduction and background

This research project aimed to provide enhanced feedback to promote participants' learning, while making more efficient use of tutors' time assessing participants' work.

Distinctive features of the research included the focus on summative assessment, the emotional response to feedback, and the nature of the participants. The focus on work-based, mature learners differentiates this study from previous research, which has tended to focus mainly on "conventional" learners.

The research participants were all engaged in the Postgraduate Certificate in Higher and Professional Education (PGCHPE) at Staffordshire University. The aim of the PGCHPE is to develop participants' capacity to critically evaluate their own approach to supporting student learning in the light of theoretical and research based evidence. The course is aimed at teaching and facilitation of learning staff, most of whom are employed at the University, although some are external. It consists of four modules, and this research focuses on the assessment feedback for the first module, "Supporting Learning".

The cohort is highly diverse in terms of learning styles, approaches to learning, confidence

in using technology, study skills, and, potentially, disabilities such as dyslexia. Conflicting demands originating from professional and personal roles are likely to impact on participants.

The tutors who engaged in the research are curriculum development advisers in the Staffordshire University Centre for Professional Development. The research was an opportunity for tutors to not only teach, but also model, inclusive practice; and for participants to contribute to research into the impact of an approach which purports to promote learning more effectively than traditional methods.

Literature review

An introduction to the contemporary context of assessment feedback in higher education is the starting point for this review, leading to an examination of the potential for audio feedback to contribute to the enhancement of student learning and inclusive practice.

The “ripples on a pond” model of learning processes (Race, 2001a) highlights feedback as one of the main factors underpinning successful learning. Furthermore, Race (2001b) highlights its essential place in this model, based on his research. The importance of feedback is further elaborated by Handley et al (2007, p.1), who outline its central role in lifelong development, and in formal education specifically. Taras (2002) emphasises the potential of feedback to consolidate learning, deepen understanding and realign concepts (p. 504). In terms of what constitutes effective feedback, it is suggested that generic, rather than specific, comments have greater power to stimulate learning (Knight and Yorke, 2003, p.33), and this is corroborated by more recent research (e.g. Carless, 2006, p.225). Nicol and Macfarlane-Dick (2006, p.203) propose principles of good feedback practice, which include: clarifying what constitutes good performance; facilitating the development of self-assessment; encouraging positive motivation and self-esteem; providing opportunities to close the gap between current and desired performance; and delivering high quality feedback information. Higgins et al (2002, p.62) suggest similar principles, which also focus on the importance of timeliness, explanation of misconceptions, fostering higher order critical skills, and use of language which is meaningful to students.

Despite the recognition of the central role of assessment feedback and guidance on effective practice in this regard, current research suggests that there is a mismatch between the principles of feedback to promote learning and practice in HE. The National Student Survey (HEFCE, 2009) seems to indicate that assessment feedback is problematic in terms of student satisfaction. The lowest scoring areas pertain to level of detail, promptness, and the extent to which feedback provided clarification on areas which were not understood. This is corroborated by the Quality Assurance Agency (2006, 40-43); institutional audits indicated some good practice in this respect, but also highlighted less effective practices, for example variability in the quality, timeliness and consistency of feedback given. Other studies question the impact, for example Weaver (2006) suggests that students recognise the value of feedback in improving their learning, but feel that is not as effective as it could be (p.390). Glover and Brown’s research (2006) indicates that feedback lacks linkage to future work or assessment tasks (p.7).

Hence assessment feedback has been identified as an essential component for promoting student learning, and current mechanisms to provide it appear to lack effectiveness. In the light of this, it is relevant to explore alternative approaches which may increase the impact on student learning.

Race (2001b) suggests a variety of mechanisms for assessment feedback, outlines their advantages and limitations, and "scores" them against a matrix for comparing feedback methods in terms of learning "pay off" (for students) and efficiency (for lecturers). According to Race (2008), verbal feedback "scores" more highly than written, and it is suggested that this could possibly be attributed to the enhanced depth and detail. Goodyear (2001) refers to the "narrow bandwidth" of text based communication, which reduces the potential to make judgements about the meanings of words used (p.18).

In this context, it was decided to explore the potential of recorded audio as a medium to increase the efficiency and effectiveness of summative assessment feedback from a participant and tutor perspective.

As early as 1977, Moore suggested the potentially positive impact of recorded audio feedback. A variety of approaches are apparent in more current literature, including its use: for formative purposes (Merry and Orsmond, 2008); as a precursor to face-to-face support in dissertation preparation (Hill, 2008); and for summative purposes (Micklewright, 2008; Roberts, 2008; Ribchester et al, 2008; France and Wheeler, 2007). A number of advantages emerge from these studies. Enhanced quality is a common theme; for example, a content analysis of audio compared with written feedback (Merry and Orsmond, 2008) suggested that the former included a greater richness of detail, guidance for academic and professional enhancement, and messages to engage students in thinking. This is corroborated by Rotherham (2008a); it was indicated that audio feedback was more likely to include examples to illustrate points made, to suggest improvements, and to be more personal and accessible (p.4).

Students' views on recorded audio feedback seemed to substantiate these perceptions, although, as noted by Rotherham (2008a, p.3), it is possible that the positive response may be associated with novelty value. Students indicated that, compared to written guidance, audio feedback was clearer (Roberts, 2008, p.4; Rotherham, 2008a, p.1) and suggested strategies to solve problems rather than just stating the problems (Merry and Orsmond, 2008, p.4). It is implied that there was a greater feedforward potential; students stated that they engaged more deeply with the feedback (Ribchester et al, 2008, p. 5-6; France and Wheeler, 2007, p.10) and suggested that they would use it again in preparing for similar assignments (Merry and Orsmond, 2008, p.5). The positive response cannot be simply attributed to the increase in quantity; tone of voice, empathy and interest seem to be important for highlighting which parts of the feedback were more important, and for enhancing understanding (Merry and Orsmond, 2008, p.4; Ribchester et al, 2008, p.5; France and Wheeler, 2007, p.10; Northcliffe and Middleton, 2008). Furthermore, students emphasised the increased level of depth, detail and personalisation provided (Merry and Orsmond, 2008; Ribchester et al, 2008, p.4; Micklewright, 2008; Roberts, 2008, p.3-4). Building on the personalisation issue, students felt that the audio feedback demonstrated that the lecturer had seriously considered their work (Rotherham, 2008a, p.3). Other advantages expressed by students include increased accessibility (Micklewright, 2008), for example capacity to listen to the feedback within and away from the University setting (Hill,

2008; Ribchester et al, 2008, p.3) and while engaging in other activities, such as travelling (Merry and Orsmond, 2008). Overall the positive elements of audio feedback which were identified can be connected to the suggested principles of good practice in assessment feedback listed above, in particular the increased quality of the feedback information and strategies to close the gap between desired and actual performance.

In terms of inclusion, it is proposed that contemporary students may be less comfortable in processing written information, and alternative forms of feedback may be more effective (Merry and Orsmond, 2008, p.9). Audio commentary may be more understandable to this group because they are more accustomed to accessing information through sound via multimedia technology, such as mobile phones (Merry and Orsmond, 2007, p. 102-3). Furthermore, it is postulated that, in the context of widening participation, this approach will augment the skills and confidence of students (Rotherham, 2008a, p.4). Moreover, in relation to individual student differences, Fleming and Baume (2006, p.4) suggest four modal preferences for learning; aural, visual, read/write and kinaesthetic. Providing assessment feedback through audio means could promote the learning of students whose modal preferences are primarily aural, and also those whose preferences are primarily read/write, if they are asked to look at their assignment at the same time as listening. In addition, it is anticipated that this form of feedback may be more accessible to students with diverse needs, and this is indeed indicated by Rotherham (2008a); his research sample included a dyslexic student, who stated that listening to the feedback enhanced the accessibility; and some students whose first language is not English, who appreciated the opportunity to gain practice with their listening skills. In the context of inclusive assessment (Waterfield and West, 2008), there is the potential to offer all students the opportunity not only to select their *assessment* method, but also to select the *feedback* method which aligns to their individual differences, without the need for categorisation or negative labelling (p.10).

From a practical perspective, producing audio feedback could make more efficient use of tutor's time, as more detailed guidance and examples of how to improve the work could be offered in a lesser timescale. Recent research suggests that 1 minute of audio is equal to six minutes of writing (Lunt & Curran, 2010, p.761). In one experiment, they found that a piece of written feedback took three minutes to type, four minutes to write by hand and forty seconds to record, proving, they suggest, that audio is significantly quicker to produce (p.762). Even so, this research is somewhat at odds with other studies through which it is suggested that provision of audio feedback requires the same time commitment as more traditional means (Merry and Orsmond, 2008, p.5; Micklewright, 2008). In fact some authors suggest that at first it may be more time consuming (Ribchester et al, 2008, p.7), and it has even been described as "labour intensive" (France and Wheeler, 2007, p.11). Nonetheless, this approach offers ease of archiving, copying and distribution (Merry and Orsmond, 2008, p.2) because of its electronic format.

Possible disadvantages of audio feedback include the loss of specific annotations on students' work, the physical separation of assignment and feedback, and the lack of an overall feedback sheet which clearly links marks awarded to grading criteria (Ribchester et al, 2008, p. 6-7). Moreover, students may need to access their original work in order to make sense of the guidance provided (Roberts, 2008, p.4) which further elucidates the implications of the separation of assignment from feedback. Some students highlighted the fact that it was quicker to skim read text than audio; however, since the aim is to promote

meaningful engagement with feedback, this may in fact be an advantage (Rotherham, 2008a, p.3-4). Assessors' reservations include the need to learn how to use new equipment; finding a quiet place to do the recording; and becoming accustomed to hearing their own voices (ibid, p.4). Technical difficulties accessing the feedback can lead to student frustration (France and Wheeler, 2007, p.10), and the files produced can be too large to email (Merry and Orsmond, 2007, p.102). However, feedback can be shared via the Virtual Learning Environment and situated within a students' individual portfolio (France and Wheeler, 2007, p.9), thus avoiding the need to send large files by email.

In summary, the literature indicates the central nature of assessment feedback for student learning, problems in meeting the expectations of student in this regard, and misalignment of student and tutor perceptions. Despite some limitations, audio feedback seems to offer the potential to address some of the issues raised and connect to principles for good practice in assessment feedback, in particular relating to closing the performance gap, providing greater personalisation and increased detail. Furthermore, it is suggested that, while this approach does not reduce time spent developing feedback, it does make more efficient use of tutors' time.

Practical considerations

Current practitioner research into the use of audio feedback provides valuable guidance on the integration of this method into the learning situation. A combination of summative individualised feedback and overview commentary on students' work as a whole is recommended (Ribchester et al, 2008; France and Wheeler, 2007). Such an approach was adapted to this project, in that overview commentary was provided on previous course participants' work as a preliminary stage of the audio feedback evaluation. Other practical guidance includes the need to limit the length of recordings to avoid the danger of providing too much feedback (Ribchester et al, 2008, p.5); the importance of increased sensitivity in providing critical feedback by means of this medium (ibid, p.6); and further technical and professional practice guidance (Rotherham, 2008a, p. 5-7; and Merry and Orsmond, 2008, p.9). One key area was the debate as to whether marks should be included within the audio feedback. It is proposed that their inclusion will provide initial motivation to engage with the audio feedback (ibid, p. 6; Micklewright, 2008), and this may also to some extent address the concerns regarding learning from summative assessment feedback, outlined earlier – particularly if marks are included near the end (Rotherham, 2008b, p.5). However, it has been suggested that disconnecting feedback from grades can facilitate students' engagement with feedback (Carless, 2006, p.230; Taras, 2002, p.507). Furthermore, from a pragmatic perspective, including marks within the commentary can pose issues in relation to moderation and second marking, so an alternative approach is to send marks separately after students have received the feedback (Rotherham, 2008a, p.6). Having considered the range of views on this topic, it was decided to include marks with the commentary as well as noting them separately.

The two tutors deployed different technology to contribute to a wider evaluation. One used a mobile device, recommended by Rotherham (2008b, p.5) while the other used Audacity software¹.

¹ Available from <http://audacity.sourceforge.net/>.

Research methods

Formative evaluation was conducted before and during the project in order to develop appropriate feedback mechanisms and systems, and compare the impact of text and audio media. Summative evaluation of the project had a primary focus on the impact on participants' response to the feedback including its feedforward potential, and a secondary focus on the implications for tutors.

Evaluation questions

The following evaluation research questions were devised:

- What is the impact of preparing audio files on tutor workload?
- To what extent does audio feedback contribute to "feedforward"?
- What is the impact of using the medium of audio on the messages conveyed by summative feedback?

Methodology

The relatively democratic and collaborative relationships between tutors and participants lent themselves to a participative approach to the research, hence an action research methodology was adopted. Tutors sought to promote scholarly activity and lead by example, as well as facilitating a co-generative approach to knowledge construction (Levin and Greenwood 2001, p. 105). While some action researchers (e.g. McNiff, 2002) would posit that action research is focused on the researcher's own practice, others (e.g. Bhattacharya et al, 2000) suggest that the findings of action research have the potential to be extended into generalisable enquiries. In terms of this notional continuum, the evaluation described here has tendencies towards the latter approach; as a number of studies have already been carried out in relation to audio feedback, it is to be hoped that the results of the evaluation may have the potential to contribute to the literature on this topic.

Data capture methods

Glenaffric (2008) highlights the need to engage in continuous formative evaluation to improve results, rather than solely use summative evaluation, focusing on "proving" results. It was decided to use a combination of analytical and empirical data for formative evaluation purposes. Initially, analytical methods, consisting of a quality review checklist and an expert walk through, were carried out to inform the overall direction of the project. While these methods were not aligned to an action research approach, they were complemented by an initial participant comparison of the messages conveyed by audio and text formats.

The summative evaluation used empirical methods comprising a questionnaire and focus groups. The questionnaire explored specific issues (such as accessibility) via closed questions, and possibilities (such as impact on learning) via open questions. The questions devised focused on access to the feedback, suggestions as to how it could be improved, number of times participants had listened to it, the balance of positive and negative comments, contextual factors which would impact on their ability to engage with feedback, and future preferences. These questions were selected on the basis that they would provide an indication of participant engagement with and response to the feedback, and start to

address the first two research questions. A further question pertained to demographic data, revealing that the participants in the study were all female and mature, which should be taken into account when considering the results.

Following the completion of the questionnaires, focus groups were facilitated with a representative sample of participants. The collaborative approach which is fostered through focus groups, with the facilitator taking the role of "theatre manager" rather than "director of the play" (Bloor et al, 2002, p. 49) aligns to action research methodology. The questionnaire responses were used to generate a card sort exercise, which was deployed to stimulate discussion in the focus group.

To achieve formative and summative purposes, an e-journal was maintained throughout the project to capture the reflections of tutors engaged in providing audio feedback. This aligns to action research methodology (e.g. Kemmis and McTaggart, 1988, p. 13). Furthermore, it was used to explore the concerns relating to time and resources involved in preparing audio feedback.

Data analysis methods

It was decided to classify the responses to open questions on the summative questionnaire and the focus groups using categories which emerge from the data and are of relevance to the research. This would complement and extend the data from closed questions in the questionnaire, and present a logical progression; initial classification of responses to the questionnaire could be used to generate tentative categories, which could be examined further via the focus group (via the card sort exercise, above). Bloor et al (2002) outline the use of analytic induction as a means to analyse focus group data (p. 66) and it was decided to broadly employ this method as a basis for further analysis.

Ethical considerations

The approach used was aligned to the BERA ethical guidelines (2004), and ethical approval was obtained from the relevant panel. In particular, since the summative evaluation was taking place after the publication of assessment results, this would mitigate any potential concerns in relation to the researcher's position of responsibility and the impact of "power" relationships. As the approach used is aligned to the principles of action research, participants would have the opportunity to be actively engaged in the research and maintain continuous awareness of the outcomes as the research progressed. It was further agreed to publicise a summary of the results to the participants via the course virtual learning environment.

In summary, evaluation was integrated throughout the project, and this facilitated the development of a number of subsidiary action research cycles in response to the reactions elicited.

Findings and recommendations

This section starts with a systematic summary of the responses to each data collection tool; the subsequent "Discussion" links the data generated to the initial research questions and literature review; and the section concludes with recommendations for future practice.

Findings

Formative evaluation

The expert walk through was conducted with a member of staff who has published on the topic of using audio means to provide formative feedback (e.g. Merry and Orsmond, 2008). It was suggested that audio feedback is highly conducive to feedforward, giving the tutor an opportunity to provide more guidance on future professional and academic practice than would be expected in written feedback.

The results of the initial comparative evaluation of text and audio as a means of communication elicited a limited response; of the 32 PGCHPE participants, only 6 completed the initial evaluation questionnaire, and of these, 4 offered qualitative comments. Despite the limited response, the comments provided were illuminating; generally participants suggested that the audio approach was provided in more accessible language, offered more examples to illustrate points made, and strategies to solve problems.

Summative evaluation

Questionnaire

The summative evaluation questionnaire elicited 10 replies out of a possible 32, a 31.25% response rate. Apart from the percentages below, the quantitative data has not been analysed, as the number of respondents was not statistically significant.

8 of the respondents were female, whilst the cohort is 62.5% female. In terms of ethnic breakdown, 9 respondents were white British, and one was "other Asian". The ages of participants are indicated below:

Age Group	Number of Responses	Percentage
60+	0	0%
50 - 59	1	10%
40 - 49	6	60%
30 - 39	1	10%
20 - 29	2	20%
Total	10	100%

Table 1: Age of questionnaire respondents

Respondents did not indicate difficulties with access to the feedback (4 stated it was "easy to access", 6 "OK to access"). When asked how access to the feedback could be enhanced, participants offered the following responses:

Answer	Response	%
Changes to the introduction of the audio feedback	1	11%
Improved IT support	0	0%
Change to the content of the feedback	1	11%
Change to the verbal delivery of the feedback	2	22%
No improvement needed	6	67%
Other, please add:	0	0%

Table 2: Suggestions as to how the audio feedback could be enhanced²

Respondents were asked to explain the responses above, and the qualitative comments included one participant who mentioned that the audio was muffled, and another who commented that it was not possible to rewind. The latter may be due to the software used; it should be possible to rewind the audio; in fact, students in another study (Rotherham, 2008) highlighted the advantage of replaying the feedback.

Respondents had all listened to the feedback, and 7 out of 10 had listened to it more than once, as indicated in table 4, below:

Answer	Response	%
None	0	0%
One	3	30%
Two	4	40%
Three	1	10%
More	2	20%
Total	10	100%

Table 3: Number of times respondents had listened to the feedback

Participants were asked about the balance of positive and negative feedback on their work:

Answer	Response	%
Highly positive about the quality of your work	0	0%
Mostly positive about the quality of your work, but with some changes suggested	6	60%

² Participants were asked to tick as many responses as they felt applied; as only 9 respondents completed this question, the percentages no longer relate to a total of ten.

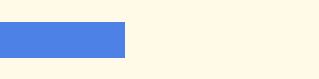
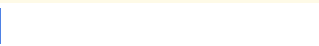
A mixture of positive comments and suggested changes		4	40%
Other		0	0%
Total		10	100%

Table 4: Balance of positive to negative comments

The subsequent question asked participants what changes they might make to their practice; out of 5 responses, 4 participants were able to identify potential changes.

Participants were asked for contextual factors which impacted on their ability to engage with the feedback:

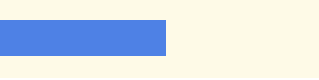


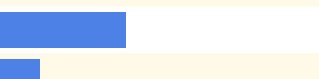
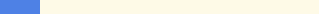
Answer		Response	%
Your reaction to the grade attained in the assignment		4	50%
Lack of time to engage with the feedback		1	13%
Environment, e.g. background noise		3	38%
Difficulty understanding speaker		3	38%
Other – please state (too fast)		1	13%

Table 5: Factors impacting on ability to engage with feedback

8 participants responded, and chose multiple responses. Reaction to grade attained appears to be the most significant contextual factor, with environment and difficulty understanding speaker also being selected by 3 respondents.

Participants were asked to indicate their future preference for feedback format:

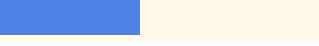
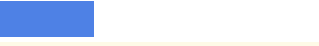


Answer		Response	%
Audio		3	30%
Text		2	20%
Both audio and text		5	50%
Other, please state		0	0%
Total		10	100%

Table 6: Preference for feedback format in future

The participants on the Nursing and Midwifery Council route expressed concern about not having text based feedback to include in their portfolios. It is possible that this contributed to the number of participants requesting both audio and text feedback in table 6 above. This is further corroborated by the qualitative comments; participants were asked to expand on their reasons for the choosing audio and / or text, and of the 6 comments provided, 2 mentioned the need for portfolio evidence.

Focus group

A small group of 4 participants volunteered for the focus group; although this is smaller than may be considered typical, it was decided that the reduced number could form a viable group, and indeed some researchers prefer a smaller number of participants (Bloor et al, 2002, p. 27). The participants were all female, which is not representative of the group's gender mix. 2 participants were from the same subject area; varying levels of experience and backgrounds were represented, including a technician, a researcher, an external lecturer and an internal lecturer. The participants represented a range of ages and confidence in using technology. One participant was from a BME background and her first language was not English.

The key themes identified by the focus group are listed below.

Positive aspects of audio feedback

Personalisation; level of detail; use of examples; voice giving added meaning; academic feedforward potential; linkage to professional practice; inclusion; novelty value.

Practical issues

Practical and technical constraints; communication of mark.

Emotional response

Anxiety regarding mark; emotional impact of audio feedback.

Comparison with other forms of feedback

Limitations of audio feedback; limitations of other approaches to feedback.

Impact of audio feedback

Positive impact (for some participants); limited impact (for others).

E-journal

The e-journal entries generally reflect the trends suggested by the literature review in terms of time taken and potential to provide greater detail.

Discussion of findings

The data generated addresses the original research questions, which focused on **tutor workload, an examination of feedforward potential, and messages conveyed by audio means.** The findings broadly align with the literature review, with some interesting differences.

Tutors' experiences

In terms of the tutors' workload, generally this approach was found to take an equal amount of time compared with written feedback, and this connects with the literature review (e.g. Merry and Orsmond, 2008, p.5). Nevertheless, the preparation and aspects such as disseminating feedback and second marking consumed significantly more time. One positive aspect of providing audio feedback which was not anticipated through the literature was the quality of the experience of assessing participants' work; the journal described the preparation of audio files as "more enjoyable" compared to traditional feedback. This suggests that Rotherham's (2003a) novelty effect may apply to tutors as well as learners.

Linked to the time taken to produce feedback, it is recommended that feedback should be limited to 3-5 minutes (Ribchester et al, 2008, p.5). One assessor had difficulty adhering to

the suggested limit; the maximum length of feedback provided was 9 minutes.

In terms of disadvantages, the availability of time and quiet space to engage in audio marking was problematic. Other disadvantages related to lack of technical proficiency, and adapting to a new method of working. The latter point is illustrated by the following comments, made after marking the first nine scripts:

“At first I found assigning a mark more difficult than previously. I normally write feedback, then re-read it to assign a mark.”

“In some ways in preparing the audio feedback I feel more "exposed" - if I am a little uncertain, I think it will be apparent in my tone of voice.”
(Journal entries 8th May 2009)

These issues align with the reservations expressed by tutors indicated by Rotherham (2008a, p.3-4). Increased experience of the production of audio feedback would be likely to mitigate the majority of the concerns expressed.

Feedforward potential

Tutor comments provided to students following assessments normally include aspects of both diagnosis and future action. In this context it is appropriate to refer to some aspects of the tutor comments as ‘feedforward’. For the purposes of this research, the feedforward potential of tutor comments is considered to be of enormous value in the wider context of teaching and learning, thus the feedforward potential of audio comments presented to students following an assessment have been a key focus of this paper. In relation to feedforward potential, the findings largely indicated that, as anticipated in the literature review, audio feedback may be more likely to contribute in this regard than other approaches. The response to the summative questionnaire was somewhat limited in relation to messages for future practice, with 5 out of 10 participants offering comments in relation to this aspect, only 3 of which were clear about changes to approach. However, the focus group participants all indicated that the audio commentary had feedforward potential; an intention to use the feedback in preparation for the next assignment was elaborated. While there was some discussion of its relevance to the subsequent assignment (a poster assessment) participants concluded that the key points could nevertheless be applied.

As well as impacting on academic practice, it was anticipated that the verbal feedback may address the level of “micro-world” of the participants’ own professional practice (Laurillard, 1993, p. 103), for example providing guidance which could be applied to learning and teaching situations. The feedback suggests that this did take place, but not necessarily in the manner anticipated by the researchers. Focus group participants indicated that the audio feedback had provided a role model of good practice, encouraged them to reflect on their own approach to providing feedback, and consider their use of positive and constructive language. A discussion also took place within the focus group as to potential alternative forms of feedback for the future, as participants pondered what medium might supersede the audio approach. This outcome to some extent contrasts with the tutor’s reflections in the e-journal, which suggest that professional practice had been encompassed directly in the feedback:

“... I feel I am giving much fuller feedback, including messages which will impact on future academic and work-based practice.”

(Journal entry 8th May 2009)

Messages conveyed by audio means

The responses to the questionnaire and focus group generally indicated that audio feedback provided more detail, examples to illustrate points made, and clarity about improvements needed (although some questionnaire respondents were less clear about this aspect, as illustrated later). It was also suggested that tone of voice used enhanced learners' understanding of the points made. Furthermore, academic language was made more accessible:

“And when the audio feedback came, there were examples to say ‘You evaluated this when you did this and that’, and you say, ‘Oh, that’s what they mean when they say critically analyse, and evaluate’, and it’s just those simple things that sort of click.”

(Participant C, lines 400-404)

These comments align to the advantages elucidated in the literature review, for example enhanced clarity (Roberts, 2008, p.4; Rotherham, 2008a, p.1), strategies to solve problems (Merry and Orsmond, 2008, p.4), inclusion of examples (Rotherham, 2008a), and increased detail (Merry and Orsmond, 2008; Rotherham, 2008a). Participants in this evaluation also commented on the novelty nature of the approach, describing it as “interesting”, “different”, even “exciting”; according to Rotherham (2008a, p.3), novelty value could provide an explanation for positive responses, hence the need for continuing evaluation is indicated.

It was anticipated that the use of audio had the potential to contribute to inclusive practice, and evidence for this was volunteered by the focus group. One participant, whose first language is not English, commented that both the language used and the tone of voice enhanced the meaning of the feedback for her, and this corroborates the findings of Rotherham (2008a) in relation to international students. Another participant described herself as an “auditory learner”, and suggested that this had enhanced her ability to benefit from and remember the feedback. This provides some evidence for the assumptions of Merry and Orsmond (2008, p.2) in relation to learning preferences and audio feedback.

The enhanced personalisation of this approach was a key theme in the literature review (for example, Rotherham, 2008a, p.3), and again this was highlighted by the focus group participants. It was perceived that assessors had taken “time out” to focus on each individual's assignment. For some participants this seemed to enhance the meaning, and this was compared favourably with text feedback:

I know, because with the written feedback, you know we used to get the forms, and it just felt a bit detached from your piece of work, but this, you know you really actually felt like “Oh yes, I know what he’s talking about when he said that”. I preferred the audio.

(Participant C, lines 255-8)

Nevertheless, for one participant, the feedback was undermined as she did not agree with the comments made. This links to the issue highlighted in the tutor's e-journal in relation to

feeling "exposed"; any lack of clarity as to the assessment is brought into sharp focus through the medium of audio. This participant concluded that listening to the audio and reading the assignment at the same time would promote a more personalised experience, which furthermore aligns with Roberts' (2008, p. 4) suggestion that this approach would help to make sense of the guidance provided.

Practical issues impacted on the messages conveyed by audio feedback and its feedforward potential. One participant almost deleted the email conveying the feedback as the title made it appear to be junk mail; another participant had difficulty accessing the feedback as she worked in an open-plan environment, and felt embarrassed to listen to the audio in the presence of her colleagues; a further participant played the audio at the wrong speed. Some feedback provided was muffled. However, the key issue for all focus group participants and most questionnaire respondents was the timing of giving the mark. The literature was not conclusive on the topic of including marks with feedback or separately; a decision was taken by tutors to include the mark at the end of the feedback. However, participants indicated that they were unable to concentrate on the feedback until they had discovered their mark. It was suggested that ease of access to grade was a particular advantage of text feedback compared with audio. While it was recommended by the group that the mark should be given at the beginning, there was some discussion as to the impact of grade on likelihood of engaging with the feedback; it was anticipated that participants who gained poor marks may be less likely to attend to the commentary. One participant suggested that being informed in advance that the mark would be provided at the end of the audio would mitigate this issue. For one questionnaire participant the positioning of the mark had a significantly negative impact on her feedback experience:

"Grade point first then feedback can be seen in context, no point getting unremitting positive feedback and at the end learning gp11³ not clear what improvements needed."

A further unanticipated issue which arose during the research was the emotional response to assessment and feedback. Participants described themselves as lacking in confidence, anxious, even desperate, in relation to finding out their grade point. The audio feedback provoked a range of emotions, including surprise, happiness (regarding the grade), fear of embarrassment (in relation to others over-hearing), annoyance (at not having any text) and relief. The constructive comments provided appeared to evoke a positive emotional response and build confidence. The emotional aspect of audio feedback is an area which may merit further research, as it was not evident in the literature surveyed.

Another feature of this research which possibly differentiates it from the existing literature on this topic is the age of the participants. Their profile would seem to suggest that they are less likely to be part of the "digital native" generation (Prensky, 2001). Hence unlike younger students, who may be more accustomed to accessing information through sound via multimedia technology (Merry and Orsmond, 2008), it could be anticipated that this group may be less comfortable accessing MP3 files. The generally positive responses to audio feedback from this group are of interest given the potential influence of age.

³ GP = grade point; an 11 is a merit grade (the scale is 1-15, with 7 as the pass grade).

Conclusions and recommendations

The evaluation elicited a response which was disappointing in terms of number, but nevertheless provided rich and thought-provoking data. While generally the responses aligned to and in some cases further substantiated the literature, some additional aspects emerged, in particular the emotional response to feedback, positioning of the mark within the audio file, practicalities such as attempting to access feedback in an open plan office, tutors feeling "exposed" and, linked to this, course participants' heightened sensitivity to the accuracy of feedback.

Based on the generally positive response to the evaluation, it is recommended that audio feedback could be considered in other learning situations, for both formative and summative purposes. In relation to the latter, to enhance the experience for the participants, tutors should consider the merits of providing the mark at the beginning, or separately. An alternative suggested by one focus group participant was to tell participants mark will be at the end of the audio in advance. Participants should be encouraged to listen to feedback with assignment in front of them to enhance personalisation. A minor practical issue of great significance to the participant concerned would be to alert participants to the date of releasing feedback, and suggest they bring headphones if their office is open plan. Some alterations to file quality may be needed to address the issue of muffled delivery. The emotional response to feedback could be further examined. Since some participants were less positive in their response to audio feedback, offering a choice of feedback method should also be considered; "inclusive feedback" could align to the inclusive assessment proposed by Waterfield and West (2005).

It is intended to conduct further iterations of the research with PGCHPE participants; a focus suggested by the expert walkthrough was to explore a possible correlation between response to feedback and grade attained. Additional technical innovations could be examined, such as the use of voice recognition software, and embedding audio comments in documents.

Recommendations for future practice comprise suggestions to enhance the technical, practical and emotional experience for all participants, and offering a choice of feedback mechanism. It would seem that there is the potential to extend the application of this technique with a view to enhancing and evaluating professional and academic learning from summative and formative assessment.

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