

9-2010

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Chris Evans

Brunel University, UK, chris.evans@brunel.ac.uk

Luis Palacios

Brunel University, UK, intfeed@gmail.com

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Recommended Citation

Evans, Chris and Palacios, Luis, "FEEDBACK ON STUDENT ASSIGNMENTS: AUDIO AS AN ALTERNATIVE TO TYPING" (2010). *MCIS 2010 Proceedings*. 28.

<http://aisel.aisnet.org/mcis2010/28>

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FEEDBACK ON STUDENT ASSIGNMENTS: AUDIO AS AN ALTERNATIVE TO TYPING

*Chris Evans, Chris.Evans@brunel.ac.uk;
Luis Palacios, Luis.Palacios@brunel.ac.uk
Brunel University, UK*

Abstract

This paper describes a comparative study into the use of audio versus text as a form of feedback on student assignments. Many educational institutions currently use typewritten feedback, but developments in technology now make the provision of feedback in audio form a feasible proposition. The expansion of Higher Education has meant that creating conventional typewritten feedback can be very time consuming for academic staff. There is therefore a need to find mechanisms by which the creation of feedback can be made more efficient and effective. Audio has the potential to enhance feedback by being quicker to produce and of higher quality. The study considers two experiments to investigate the hypothesis that the use of audio feedback enhances the feedback process for both tutors and learners. Two hypotheses are tested: the time-reduction hypotheses H_1 ; and the quality enhancement hypothesis H_2 . The results indicate that recording feedback in audio form can decrease the time it takes to create feedback by 40-50%. Moreover, tutors report that the process of creating audio feedback is less constraining than producing typewritten feedback. Learners report that audio feedback is richer in that it conveys more information than its type-written equivalent; and it is more authentic in that it gives them a better insight into the assessment procedure adopted by tutors. It helped to break down the tutor-learner barrier.

Keywords: Audio Feedback; Learning Technology; Typing; Pedagogy.

1 INTRODUCTION

The expansion of higher education has meant that, with large numbers of students, recording feedback can be very time consuming. This can have a knock on effect on the length and quality of individual feedback. There is a need, therefore, to find mechanisms to ensure that the quality and quantity of feedback is sustained or even enhanced.

The production of feedback on submitted work is widely regarded as an important formative part of learning in higher education institutions. In the past producing feedback has meant creating handwritten comments on students' scripts or on a separate sheet. Many tutors have progressed to providing typewritten (word-processed) comments.

For most people, speaking is a much quicker form of communication than typing. Developments in technology, and their widespread use, have now made it relatively easy to record and return audio feedback as an alternative to typewritten feedback. This study seeks to establish whether the use of such technology can enhance the feedback process for both tutors and learners.

2 LITERATURE

Many educators recognize the crucial role that feedback plays in contributing to the learning process. Recently the effectiveness of formal feedback has undergone some scrutiny. For example, Søndergaard and Thomas (2004) found that in their faculty survey, one in three students disagreed or strongly disagreed with the statement: "I received helpful feedback on how I was going". They argue that this dissatisfaction is widespread. There is also a growing body of evidence that indicates that the potential benefits of feedback are often not attained (e.g. Chanock, 2000; Duncan, 2007; Hounsell et al., 2008). There is recognition amongst authors that providing feedback is often a time-consuming activity, and that if the feedback system is to be improved it must not increase the workload of tutors. Clearly if learners are to benefit from feedback it must be relatively quick and easy for tutors to provide it to an adequate standard of quality.

Whilst handwritten or typewritten feedback seems to be the norm, there is evidence to suggest that spoken feedback can be much more easily generated. Developmental studies indicate that written skills develop much later than oral skills and take more cognitive processing to exercise Grabowski (2010). This cognitive overhead may partially explain why most people find it quicker to speak than to write. This suggests that one mechanism for reducing the workload burden for creating feedback might be to use the spoken rather than written modality.

Several studies have considered the relative speeds of speaking and writing. In early informal studies Gould (1978) suggested that people could handwrite memorized material at about 40 words per minute (wpm) but speak or read it aloud at around 200 wpm. Card et al. (1983) report that an experienced typist can reach approx. 80 wpm.

Of course the process of generating feedback is not simply a matter of speaking or writing. It also involves the critical evaluation of students' work and the synthesis of sentences. To test whether the speed enhancements of speaking rather than typing carry over to the process of creating feedback, this study sought to test the hypothesis H_1 : creating feedback in audio form is quicker than creating feedback in typewritten form.

The benefits of audio over typewritten feedback should carry over to the learner. The study thus also sought to test the hypothesis H_2 : feedback received in audio form is better quality than feedback received in written form.

In order to test these two hypotheses, two action-research experiments were designed. The first was a pilot study to test the time-reduction hypothesis H_1 . On the basis of the outcome of this, a second study was designed to corroborate the time-reduction hypothesis H_1 (under slightly different conditions), and to test the quality-enhancement hypothesis H_2 . These two experiments are described in the next section.

3 PILOT EXPERIMENT (EXPERIMENT ONE)

3.1 Method

3.1.1 Participants

The subject was a male Senior Lecturer in Emotional Labour at Brunel University in West London, UK, using assignment essays submitted by undergraduate students taking a BSc in Business and Management.

3.1.2 Materials and apparatus

Audio feedback (speech) was recorded using an Olympus WS-310M handheld digital voice recorder as a WMA file. Text feedback was recorded (typed) using Microsoft Word 2007, a Viglen PC and a 17" TFT display. It was stored as a Windows .docx file.

3.1.3 Procedure

Two one-hour marking slots were assigned to conducting the experiment. The submitted assignments were randomly divided into two groups. The scripts had all been read on a previous occasion and hand-written notes had been made on the scripts, but no feedback had been formally recorded or created.

The first group of scripts was used for the audio feedback condition (A). During the first allotted hour, each script was re-read and audio feedback was recorded. Thinking and reading time formed part of the measure in an effort to capture as close as possible the real world conditions of a lecturer generating and recording feedback. The process was conducted for each script in the pile until one hour had elapsed. The number of complete feedback recordings was then noted. For the text feedback condition (T), the second batch of scripts was used. During the second allotted hour, as in the first, each script was re-read and feedback was recorded, this time in typed form. The number of complete feedback recordings was again noted.

Subsequent to the feedback recording, the tutor was interviewed.

3.2 Results

The number of scripts processed with audio feedback in an hour was eight. The number of scripts processed with text feedback in an hour was four. This suggests that audio feedback doubles the number of scripts that can be processed in an hour (and, equivalently, reduces the time taken to process text feedback by 50%).

This provides initial support for the time-reduction hypothesis H_1 . In order to subject the findings to statistical analysis, the experiment was repeated, this time recording the time taken for each script so that a mean could be established and subject to significance testing.

4 EXPERIMENT TWO

4.1 Method

4.1.1 Participants

The subject was a male Senior Lecturer in Marketing at Brunel University in West London, UK, using dissertation proposals submitted by eight postgraduate students taking an MSc in Marketing. The tutor's mean typing speed was 24 words per minute assessed using the average of two tests.

4.1.2 Materials and apparatus

Audio feedback (speech) was recorded using an Olympus WS-310M handheld digital voice recorder as a WMA file. Text feedback was recorded (typed) using Microsoft Word 2007, a Viglen PC and a 17" TFT display. It was stored as a Windows .docx file. Typing speed was assessed using Mavis Beacon Teaches Typing™.

4.1.3 Procedure

A random sample of eight MSc dissertation proposals was divided into two groups. The scripts had all been read on a previous occasion but no feedback had been recorded.

The first group of four scripts was used for the text feedback condition (T). For each script, the start time was recorded at the point where typing began and the end time at the point where typing was completed to the satisfaction of the tutor. The reading time prior to commencement of typing did not form part of the measure. However, reading time during the construction of feedback was included. For the audio feedback condition (A), again the start time was recorded at the point the recorder was first switched on, and the end time at the point where recording was completed to the satisfaction of the tutor. The tutor was permitted to pause the recording at any time to re-read the script or collect their thoughts. This thinking/reading time was included in the overall time. Significant differences between the times were assessed using a one-tailed Student's *t*-test. All statistical tests were performed with an alpha (α) value (significance threshold) of .05.

Subsequent to the feedback recording, the tutor and A condition students were interviewed.

4.2 Results

In Experiment Two, the average time taken for text feedback was 8:26.5 min and for audio feedback was 5:07.5 min (see Table 1). Thus the use of audio reduced the overall feedback time by 39%. The mean difference of -199 s (3:19 min) is statistically reliable, unpaired Student's *t*-test, $t(6) = -2.854$, one-tailed, $p < .05$, with an effect size of 2.02 (small).

Group	Recording Time/s	
	<i>M</i>	<i>SD</i>
T (n=4)	506.50	99.07
A (n=4)	307.50*	98.12

* $p < .05$; $ES = 2.02$

Table 1. Experiment Two Feedback Recording Times (in seconds)

5 DISCUSSION

The two studies suggest that audio recording can decrease the time it takes to create feedback by 40-50%. This supports the time-reduction hypothesis H_1 . When interviewed, the tutor in the Pilot Experiment reported that he felt more comfortable working with audio than text feedback. He particularly appreciated the increase in the recording rate facilitated by audio. He reported that he had erroneously expected the creation and uploading of MP3 files to be much more complex than it turned out to be. The only reported drawback was the number of “ums” and “ers” that were recorded; but he expected this to decrease with practice. He added, “It felt very unconstrained, like free-wheeling down a hill with plenty of elbow room either side. After an hour I did not experience any flagging of energy and certainly no sudden sag in enthusiasm which I admit to getting when marking conventionally”.

In Experiment Two the tutor reported that he expected audio feedback to be beneficial because he believed students preferred it, and he thought it would be a “richer” medium. However the experience led him to think that there was actually no significant time saving (contrary to the reality; the findings were obviously unknown to him at the time). He also reported that in trying to balance the quality in the two modes he believed that the audio did not end up being richer. Despite these reservations he preferred recording audio feedback because the spoken word “is more natural” and “a lot of [wasted] effort is spent in typing the letters”.

The students’ perceptions did not match those of the tutor. They praised the audio feedback for feeling “extremely personal” and “less abstract than written text”.

The students also suggested that audio “helped the relationship [by reinforcing the] professional bond between tutor and tutee”. One interviewee commented that because he could “hear rustling paper [he knew the tutor] had taken time to read through it”.

Interviewees also commented that tonal feedback on “how good it is or not” made him feel the “information was richer” than written text. Another commented “I prefer audio because you get the additional layers of feedback in the form of tonal suggestion”. One added, “if it is more time-efficient than written feedback it is definitely worth it because it is a richer standard of feedback”.

One related new effect that emerged from interviews was authenticity. One interviewee suggested that audio feedback was “more reliable [because] you can hear them flicking through your essay in the background”, and “more rewarding and enjoyable [because the tutor is perceived to have put in the effort]”. Another commented that the audio “reinforced that they had actually read through it”. These learner effects all support the quality-enhancement hypothesis H_2 .

None of the students expressed any technical difficulties in downloading and listening to the audio files. Most simply clicked on the link and the file opened in Windows Media Player.

The only reported downside of audio feedback (from the students’ perspective) was that it was more difficult to scan and focus on particular aspects. However most believed this was more than compensated by the richness of audio feedback.

6 CONCLUSION

The creation of audio feedback can offer significant time savings for tutors compared to typed text. Modern developments in recording and delivering audio mean that providing audio feedback is now a real possibility for tutors. Not only does it appear to reduce the time taken for them to record the feedback, but it also appears a more natural and liberating process.

From the learners' perspective, audio feedback is richer and more authentic than written feedback. It appears to personalize the feedback relationship between tutor and learner, reducing the social space that often divides them.

This study assumed that the quantity of feedback was similar for each mode (audio or text). Indeed tutors were asked to attempt to ensure this. However, preliminary inspections suggest that tutors may actually be increasing the amount of feedback (in terms of word count) in the audio mode, further increasing its efficiency over text. Future studies are planned to investigate the quantity and quality of the audio feedback produced.

7 ACKNOWLEDGMENTS

We would like to thank the tutors and students who participated in this study for their cooperation and valuable insights.

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