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TOWARDS AN UNDERSTANDING OF STUDENTS' USE OF AUDIO FEEDBACK: AN EXPLORATORY STUDY

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Abstract

It is widely regarded that providing students with feedback is central to their learning [1]. Traditionally feedback has been given to students either in person or in writing, however, more recently, due to advancements in technology, audio is being employed by a small minority of lecturers in Higher Education [2-5]. To date, research on audio feedback has focused on students' perceptions of it as a feedback mechanism, and its ability to increase students' sense of involvement. However this paper adds to this stream of research by exploring the manner in which students engage with audio feedback. Using data gathered from Business students in the Dublin Institute of Technology, Ireland, this paper explores how students evaluate audio feedback as a method through which to improve their academic performance. This study also examines age related differences in the number of times students listened to the feedback and it considers the reasons for this.

Keywords: Formative feedback, assessment, audio feedback, technology, student perceptions.

1 INTRODUCTION

It is now widely accepted that formative feedback is essential to students' learning [6-9]. Formative assessment is feedback given to students that is intended to improve their performance [10] and typically involves giving detailed information to students on how they can better their grades. This differs significantly from summative assessment which is where the student receives a final grade with no indication as to how they may improve their work. The general consensus is that formative feedback is a positive measure [11] with research in this area focussed on its effects, some of which include student achievement gains, increased intrinsic motivation and increased self-efficacy [12]. While many are cognisant of the benefits of formative feedback to students' learning, the actual implementation of feedback varies considerably from one lecturer to another. With a greater need for assessment methods that enhance student-centred learning [1], one such means through which to achieve this is to provide students with feedback in the form of audio.

In recent years audio feedback has gained increased interest as a means through which to disseminate feedback to students as it is a way in which lecturers can provide feedback in a timely, relevant and meaningful way [13]. Research on audio feedback is relatively limited, however to date, tentative research has examined audio feedback's effect on student satisfaction, perceived learning, improved instructor interaction [2] and also tentative research on students' perceptions of it as a feedback mechanism [3]. The current study seeks to extend this line of research by examining students' responses to audio feedback. Furthermore, the study also explores whether there are age related differences in the number of times students listened to the audio feedback.

In the move from a teacher-centred, autocratic higher educational system towards a student centred, social constructivist paradigm there has been an embracement of student-centred teaching methodologies that develop students' self regulation and intrinsic motivation. The increased emphasis on formative feedback is one such change that is receiving increased attention in the education literature [7-9, 12, 14, 15]. Definitions of formative feedback generally emphasise how it provides information about performance [12] with its primary benefit to accelerate student learning [1]. Race [16:15] elaborates on this stating it is an element of the 'journey of learning' from which students 'learn from mistakes, remedy their deficiencies, and advance their learning'. Formative feedback differs from summative which is typically used for grading students at the end of a teaching episode [10, 12, 17].

2 FORMATIVE FEEDBACK

A widely held view is that students are only motivated by marks, however, numerous studies have demonstrated how students greatly value comments by their teachers or lecturers [7, 14, 17], with feedback highlighting for students where they need to improve and is useful in explaining gaps in their knowledge [17]. The quality of the feedback is of the utmost importance, with students complaining of the irregularity with which they receive feedback, the brevity of comments and the lack of timeliness. One of the key issues for students is that comments do not recommend on how to improve, merely providing comments like 'well done' or 'more detail required'. In definitional terms these types of comments are clearly feedback; however they are of little use to students. This may partly be attributed to the fact that lecturers/teachers have an implicit assumption that students understand the assessment requirements [17]. To overcome this, teachers must first be explicit in communicating what is expected of students and then when providing feedback should relate a students' performance directly to these requirements. Another common criticism from students is that feedback often concentrates on the negatives with little attention given to the positives the result of which is a demoralised and unmotivated student, thus negating the very purpose of formative feedback [14]. Related to this is a situation where teachers vary greatly in the level of detail given to students. This variation can occur from one teacher to the next, but also from student to student with teachers more likely to provide less detail to very poor and very strong students and much greater detail to 'salvageable cases' [14]. Paradoxically, strong students who require feedback the least, are often the ones who seek out feedback whereas poorer students tend to adopt an almost defeatist attitude assuming that feedback will not benefit them in any way. Ideally feedback should be actionable for all students, with stronger students having their strengths reinforced and weaker students recognising their mistakes thus knowing how to improve. Students also complain that feedback is not received in a timely manner, either being too close to the final year exam to do something about it, or at the end of a module when marks have already been allocated. In order for feedback to be effective, it is imperative that comments are given early to students so they can be incorporated into their future assessments or examinations. In essence, it is essential that feedback communicates to students on how to improve their performance or to better their grade [1]. In order for feedback to be most successful it is important that strengths are highlighted, comments are not disparaging, the feedback is relatively detailed and is timely [18].

2.1 Audio Feedback

From the teacher or lecturer's perspective, providing students with feedback that is comprehensible to students can often be very difficult as the assessment criteria are often tacit and thus difficult to explain to students where they have fallen down [14]. Furthermore, with increased numbers in higher education, lecturers often find it very difficult to make time to provide students with feedback. Traditionally feedback has taken the form of written notes and comments or verbal dialogues with students [7], however for the latter, it has been found that students might not recognise casual conversations between themselves and their teacher to be feedback. A way in which feedback can be given which maintains the casualness of conversation while being relatively formal at the same time is to provide students with audio feedback.

Providing feedback via audio has been in existence for some time with early use relying on cassette tapes. Due to developments in technology, audio feedback is becoming much more feasible and easier to use. Lecturers who wish to use audio feedback can relatively easily record themselves with either a digital Dictaphone or a headset. For the latter, an open source voice recording software such as Audacity can be used [13]. Alternatively a very user-friendly option is to use an iPhone. If using an iPhone the mp3 file can be directly emailed to the recipient from the device further simplifying the process. A similar method using Wimba which can be integrated into Blackboard can be used whereby the audio file can be emailed directly to students from the software. However, in order for this to work students email addresses must be registered on Blackboard.

Research has shown that students can have difficulty in assimilating feedback, however Merry and Orsmond [19] found that feedback received via audio resonates more with the recipient, can be clearer to the student and also promotes reflection. Further research by Ice et al [2] compared whether students believed text or audio feedback to be more effective. The findings demonstrated that students were overwhelmingly positive about audio feedback. They also found that because audio feedback is less formal in nature, it increases students' feelings of involvement with some respondents reporting a sense of 'being there'. Audio feedback has also been praised for the level of detail it provides in comparison to written with students claiming that when receiving audio feedback it is often longer than expected. Another advantage of audio feedback is that it allows for more subtle nuances to be communicated to students through inflection or tone of voice [2, 19]. This characteristic of audio feedback means it can be easier for students to accept and for lecturers to give negative feedback as its starkness can be eased through tone of voice.

The current paper extends this line of research by investigating whether age has an impact on the number of times that students listened to the feedback given to them. Whether there are age differences in the method in which students listened to the feedback is also explored. The effect that gender has on students interaction with the feedback is also examined.

3 METHOD AND ANALYSIS

Data was collected from a variety of students on a number of programmes. All students were undertaking a core module in research methods in the Dublin Institute of Technology. An overall a response rate of 61%, or a sample size of $n = 34$ was achieved with data collected both online and through a self-completed questionnaire given to students in class. Students were asked a variety of questions on relating to their perceptions of audio feedback. Included in this were a number of questions relating to the number of times they listened to the feedback, and the way in which they listened to the audio, i.e. whether they merely listened and absorbed the feedback or if they were more actively engaged in the feedback through note taking. Demographic questions relating to age and gender was also included.

The first objective was to determine whether age had an impact on students' interaction with the feedback. To achieve this, a Pearson's correlation analysis was run between age and number of times students listened to the feedback. Prior to this a scatterplot was generated which allowed for the assessment of the relationship between the variables. The spread of the data points was reasonable with no evidence of a nonlinear relationship or homoscedasticity. Following this the correlation analysis was run and a medium, negative correlation between the two variables was found ($r = -.305$, $n = 34$, $p < .050$, with older students listening to the feedback less than younger students. Age related differences were also explored between how students interacted with the feedback. A Students t test was run between age and whether students merely listened or whether they took notes while listening to the feedback. Significant differences were found between the two groups with older students (mean = 28.9) more likely not to take notes than students who were slightly younger (25.66).

Further analysis in the form of crosstabulations and chi square analysis explored whether gender had an impact on students' use of feedback. Significant differences were also found here with female students much more inclined to take notes than their male counterparts ($\chi^2 = 5.668$, $df = 1$, $p = 0.017$).

An open-ended question was also included in the survey which asked students what their most preferred feedback format is. This garnered extremely interesting responses, with quite a dichotomy between those who have a preference for audio feedback and those who prefer feedback given on a one-to-one basis. Indeed, of the 24 students who responded to this question there was an exactly equal split of 11:11 (the remaining two students preferred other methods, such as written). The advantages of audio feedback highlighted by students included, greater detail than written methods, the ability of the lecturer to give honest and frank comments, that it can be followed up by email for clarification if necessary, it allows the students to gauge non-verbal reactions to their work (through inflection and tone), the ability to listen to it numerous times, that a record could be kept and that they can listen to it in their own time. The following are a selection of quotes from students:

'Up to now it would have been face-to-face. If I had a problem/query with results I would request a meeting. I found the audio feedback very good in that it explained the result and reasons for dropping marks.'

The above quote illustrates one of the fundamental benefits of formative feedback, in that it should be used to describe to students where they have fallen down and there is also recognition from the student that audio feedback can be followed up with a meeting with the lecturer if necessary.

'It clarifies exactly where you lost/gained marks in your personal assignment [...] I feel a lecturer may be able to give more honest/frank feedback in this manner. Any questions etc. that the student may have can easily be raised/answered via a one-to-one discussion. Audio is a quick and efficient form of feedback. You can listen to it repeatedly if you forget any aspects and so you are more likely to take helpful feedback on board.'

This quote also sees the benefits inherent in receiving feedback. However, it is interesting that this individual sees audio feedback as a means through which to give more honest answers, whether this is actually the case is unclear. He/She also sees the time efficiencies that can be gained by receiving audio feedback in this way. In addition to this, the student also finds the ability to re-listen to the audio file an advantage.

'I like the audio except I couldn't ask questions. One on one is still better but because of time constraints it is not always possible. Audio makes a good alternative.'

While the above student sees the one-sided nature as negative, they empathise that it is not always possible to meet individually with the lecturer because of time restrictions.

'I found audio useful, as I could listen to it in my own time. Written feedback can sometimes be difficult to understand, if the writing is not clear! Students and lecturers don't have to be in the same room/location to get the feedback, providing more flexibility for everyone.'

The main benefit for this student is the asynchronous nature of the feedback which provides increased flexibility. They also acknowledge that audio feedback can be clearer than written as it overcomes handwriting illegibility.

'Audio feedback from now on, [it] would be extremely helpful as not only is the verbal context good but the non-verbal communication such as a pause etc. is a good indication of your work and gives a genuine response from the lecturer.'

The above student seems to value the subtle nuances that can be gauged from the spoken feedback. This is a major advantage to providing feedback in this form as it allows for personalisation without being overly formalised.

The major disadvantages cited by students which led many to prefer personal feedback, is that it is entirely one-sided with no possibility for the student to ask questions should they arise. Interestingly, as seen above, one student recognised that lecturers are often time-poor and as a result cannot meet with every student individually. One individual who stated a preference for personal methods, noted that those studying at postgraduate level may prefer to talk to the lecturer individually. This is extremely insightful and may explain why postgraduate students scored lower on the audio feedback perception scale discussed above. As postgraduate students are likely to be inherently more intrinsically motivated than undergraduate students they may feel that audio feedback is quite limiting.

4 DISCUSSION AND RECOMMENDATIONS TO PRACTITIONERS

The findings from this study provide preliminary results on students' perception of audio feedback. They indicate that on the whole students perceive audio feedback to be very efficient, novel and useful. While the results are tentative, they seem to indicate that older students engage less with audio feedback than younger students. The reasons behind this are unclear. For instance, it is possible that older students may be slightly technophobic which might act as a deterrent in listening to the audio file. Older students were also more likely to just listen to the feedback rather than to take notes. This is surprising, as one would have surmised that older students would be more self-motivated than younger students and as a result would be more conscientious. Gender also had an impact on whether

For those wishing to use audio feedback, a variety of software such as Wimba or Audacity can be used. Mastering the process should be relatively easy as the software is very user friendly. The principle behind creating audio feedback using Audacity is very similar to that of creating podcasts, interested users should refer to Mobbs et al [23] who provide a detailed step-by-step guide to creating audiofiles. I use my iPhone within which there is an audio recorder which allows the users to email the audio file directly to the student. The only downside to this is that one would need to either have students' email addresses on their iPhone or a list readily available. The file type the iPhone creates is .aac which is now regarded as the successor to the mp3 format with most software media players having no difficulty in opening. Thus far I have had encountered no problems, however if in the event that an individual could not listen to the file I have an open source .aac to mp3 file type converter. With regards to non-technical issues, it is essential that the feedback given possesses all the qualities of good feedback [1]. I also believe it is necessary to stress to students that if they wish to discuss the assessment or grade in more detail that they can follow up with their lecturer either by email or to request a meeting in person.

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