Dialogic feedback in a digital world

> *"The essence of feedback processes with technology should be …dialogic, focused on student engagement with feedback, and with the aim of facilitating student self-monitoring of their own progress."* (Carless, 2015, p. 199)

Framing feedback in higher education

Prior to the massification of higher education, dialogue was placed at the centre of the feedback process (Nicol, 2010). Written comments on students' drafts would often be accompanied by synchronous discussion in tutorials, following which students could enact feedback information prior to submitting the assignment for grading. With the growth of cohort sizes and increasing modularisation came a shift away from this approach, towards one where *"written feedback, which is essentially a one-way communication, often has to carry almost all the burden of teacher–student interaction."* (Nicol, 2010, p. 501).

Nicol's paper served as a 'call to arms', following which many prominent scholars in the area of assessment and feedback have promoted a shift in practice, away from a focus on the transmission of comments, towards a focus on student engagement with feedback, and the impact of feedback on students' learning. David Carless terms the transmission-focused approach as being the 'old paradigm' of feedback; in contrast, the more dialogic approach represents what can be seen as a 'new paradigm' (Carless, 2015). The importance of the new paradigm lies in the recognition that the monologic transmission of feedback comments does not on its own facilitate learning (Boud & Molloy, 2013); instead, *"it is what the students can do with feedback rather than how the teacher provides it which is crucial"* (Carless, 2015, p. 28), because *"information becomes feedback only when it is used productively"* (Carless, 2015, p. 192). This emphasis on student engagement and action represents 'student uptake' of feedback as conceptualised by Carless and Boud (2018).

Central to the new paradigm is the importance of ongoing dialogue in the feedback process. Dialogue in this sense gives primacy to the role of the *student* in the process, whereby they are encouraged to seek and discuss information (from multiple sources) that enables them to develop their understanding of what constitutes quality, and empowers them to take action on feedback. In this regard, Carless argues that:

> Dialogic feedback involves iterative processes in which interpretations are shared, meanings negotiated, and expectations clarified in order to promote student uptake of feedback. (Carless, 2015, p. 196)

In this chapter, we view technology-enhanced feedback (specifically audio, video and screencast feedback) through the lens of Carless's (2015) 'old' versus 'new' paradigm postulates. In particular, we explore how the technology-enhanced feedback literature has conceived of dialogue between lecturers and students. Central to our discussion is an exploration of the discourse and conclusions drawn by researchers in this field and how this may inform our developing understanding of feedback dialogue within the digital world.

The role of technology in feedback

A search in the Scopus database for publications on the use of technology in assessment and feedback in higher education shows that the number of publications per year increased by 700% between the years 2000 and 2017. The proliferation in the number of publications on this topic represents a growing interest in the potential for technology to enhance assessment and feedback processes, alongside increasing availability of freely available technological tools that can be used to assess and provide feedback to learners (Yuan & Kim, 2015).

The use of technology has been suggested for the provision of formative feedback (Hennessey & Forrester, 2014), and the facilitation of peer-to-peer feedback (Van der Pol, van den Berg, Admiraal, & Simons, 2008). Learning analytics have also been used to facilitate the generation of individualised feedback for learners (Pardo, Jovanovic, Dawson, Gašević, & Mirriahi, 2017). Hepplestone, Holden, Irwin, Parkin, and Thorne (2011, p. 123), reported that *"a growing number of studies support the hypothesis that technology has the potential to enhance student engagement with feedback"*. Similarly, in their systematic review of the literature on students' engagement with feedback, Winstone, Nash, Parker, and Rowntree (2017) found

that the primary purpose of technological feedback interventions was to enable students to become more motivated to engage with feedback. Further, it is claimed that the use of technology can facilitate personalisation of feedback and foster relationships between student and teacher (Yang & Carless, 2013).

The most common uses of technology involve digital delivery of feedback information, using audio, video, and screencast technology. Uploading audio files of comments on students' work is thought to be beneficial because more detailed comments can be provided than might be possible through the more traditional written medium (Merry & Orsmond, 2008). Furthermore, students may perceive audio feedback as more personalised than written feedback (Gould & Day, 2013), find it easier to comprehend (Merry & Orsmond, 2008), and consider it to be more supportive in tone than written feedback (Ice et al., 2007). Perhaps because of these affordances, student engagement with audio feedback is often described as superior to engagement with written feedback; for example, 78% of students in Mayhew's (2016) study reported that they would be more likely to take action or revisit audio feedback in comparison to written feedback.

Students often interpret audio feedback as a form of dialogue (Nicol, 2010), perhaps because non-verbal cues such as prosody, emphasis, and tone can all be communicated through audio feedback in ways that are simply not possible with written feedback (Mahoney, MacFarlane & Ajjawi, 2018). Indeed, Mayhew (2016) argues that social interactions are not always afforded in written feedback. Video feedback however, affords greater individualisation and personalisation than written feedback (Henderson & Phillips, 2015), and screencast feedback (where the markers verbal comments are accompanied by an annotated visual display of the student's work) has the further benefit of markers being able to pinpoint the locus of their comments (Mayhew, 2016), and demonstrate how to correct errors (Stannard, 2007). As discussed later in this chapter, factors such as these can lead students to feel more motivated to improve their work (Henderson & Phillips, 2015).

So how might these afford dialogic approaches to feedback? In this chapter, we explore the potential factors that may facilitate audio, video and screencast feedback (hereafter referred to collectively as 'audio-visual' feedback where appropriate) promoting dialogue in a new paradigm approach to feedback. We identify three 'dilemmas' (see Figure 1) that may need

to be addressed to facilitate such dialogue. We recognise that audio-visual feedback could be used in ways that merely replicate old paradigm principles within a digital environment.

In exploring this territory, we draw upon examples from the research literature (we did not undertake a systematic literature review; rather, we utilised a snowballing technique involving backward and forward citation chasing from a number of highly cited papers on audio-visual feedback), alongside thematic analysis of empirical data from a series of semi-structured interviews with 28 academic staff (17 female) from universities across the UK. The participants represented a broad range of disciplines (Social Sciences n = 7; STEM n = 12; Health/Medicine n = 4; Arts/Humanities n = 5). Participants were recruited via opportunity sampling, and interviews lasted 30 minutes on average. Within these interviews, participants were encouraged to reflect upon their current feedback practices, and to discuss their perceptions of potentially using audio-visual feedback methods in the future. The purpose of these questions was to surface general perceptions about these methods across a broad spectrum of academics, such that our exploration of the use of audio-visual feedback, and recommendations for dialogic use of these methods, might be informed by perceptions 'on the ground'. In the section that follows, we explore each of these dilemmas in turn.
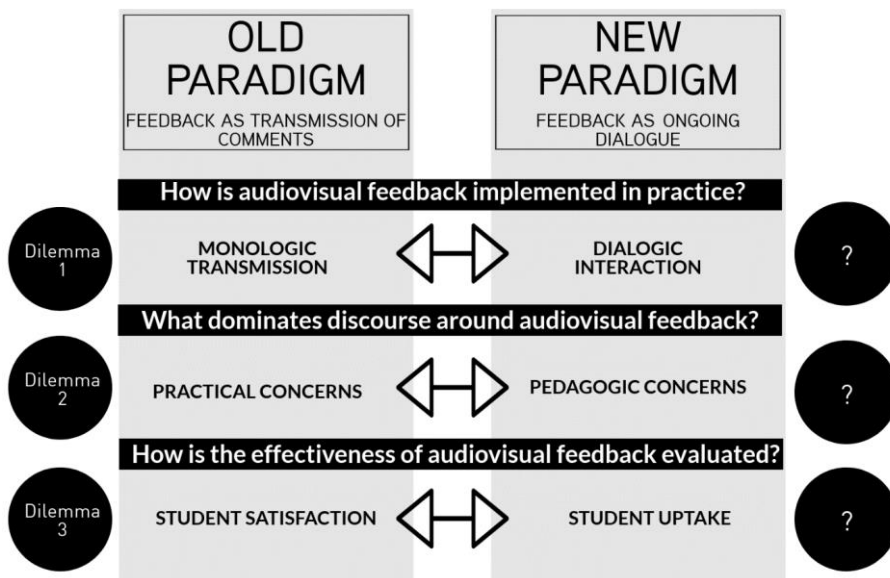
Figure 1. Positioning audio-visual feedback within old and new paradigm approaches to feedback

Dilemma 1: Monologic transmission or dialogic interaction?

Just because audio-visual feedback methods give precedence to the spoken rather than written word, this does not automatically make them dialogic. Whilst this may appear obvious, we begin with this point of clarification in recognition of that fact that *"a major challenge for the development of effective feedback processes is the predominance of a view of feedback as the transmission of information, often in the form of a monologue"* (Carless, 2015, p. 192). In order for audio-visual feedback to facilitate dialogic interaction, the practice needs to be used in ways that move beyond the transmission of feedback comments, towards student uptake of feedback. Many discussions of the role of technology in feedback espouse a belief that technology has facilitated advances in practice (Marriott & Teoh, 2012), even initiating a paradigm shift in the giving of feedback (Fish & Lumadue, 2010). Our initial exploration of the dialogic use of technology in feedback practice led us to consider the

models of feedback being communicated via the use of language. If such practices are being adopted to facilitate dialogic interactions, then we might expect to see these practices being framed in 'new paradigm' terms; that is, in ways that emphasise the engagement and active contribution of students.

Clearly evident was an emphasis on 'conversation' or the 'conversational nature' of audio-visual feedback (Cranny, 2016). Whilst 'conversation' can be seen as a synonym for 'dialogue', it is important to question whether this reflects dialogic approaches to feedback according to the definition we have adopted. Central to the argument promoting audio-visual feedback to increase conversation between lecturers and students is that it facilitates a stronger lecturer and student relationship. Further, relational elements of the feedback process increase personalisation, emphasising pertinent points through nuances in tone of voice, and by providing a more informal and engaging delivery (Carruthers et al., 2015).

Students often report that audio-visual feedback 'feels' like a real conversation, as emphasised by a student in Lunt and Curran's (2010) study on screencast feedback: *"[The feedback] was a personal address to me and my coursework, quite like sitting in John's office and getting him to explain what I need to do"* (p.764). This narrative reflects what has been described as the 'enhanced presence' of the lecturer (Hennessy & Forrester, 2014, p.784). As far back as 2007, Stannard argued that screencast feedback synthesised the processes of returning work with detailed annotations, and actually meeting the student to discuss their work. Stannard argued the screencast feedback process felt more 'human', but was the interaction between lecturer and student dialogic or monologic? In Lunt and Curran's (2010) study, the student received a more personalised form of feedback in terms of tone and contextual content, but in an asynchronous, non-discursive manner.

Within the literature that we reviewed, there was some evidence of a focus on dialogic framing of audio-visual feedback, where it was recognised that such practices can enhance students' engagement with and uptake of feedback. For example, Crook, Mauchline, Maw, Lawson, Drinkwater, Lundqvist, Orsmond, Gomez and Park (2012) suggested that:

> An appropriate technological application has the potential to encourage staff to reflect on their current feedback practices so that they can provide more detailed, comprehensible and engaging feedback.

> Technologies may also provide the innovative edge that can help students
> engage more effectively with their feedback. (p.2)

The nature of engagement as presented here requires careful scrutiny. In some cases, students are described as showing stronger engagement with audio-visual feedback simply because of its novelty (Crook et al., 2012). Enhanced motivation to engage with the contents of feedback may be a useful end in and of itself, but may not necessarily lead to uptake of the feedback. Nevertheless, given that a commonly-reported barrier to students' use of feedback is the difficulty they can experience 'decoding' the language contained within feedback (Pitt & Norton, 2016; Winstone, Nash, Rowntree, & Parker, 2017), the framing of audio-visual feedback as being easier to understand could be seen to acknowledge the importance of student engagement. For example, both audio and video feedback are framed as being easier for students to understand, often because spoken language is typically more informal in tone than written feedback (West & Turner, 2016). However, without evidence of the uptake of the feedback, a focus on the language used within feedback is more closely aligned with the old paradigm than the new paradigm.

Despite some evidence of the alignment of audio-visual feedback practices with a new paradigm model in the literature that we reviewed, an old paradigm approach still dominates. For example, many studies on the use of audio-visual feedback use transmission-focused terminology, such as: *transmitted* (Mathisen, 2012), *provide/provision* (Crook et al., 2012; Mathieson, 2012; Mathisen, 2012; West & Turner, 2016), *receive* (Mathieson, 2012; Mathisen, 2012), *give* (Mathisen, 2012), *delivered* (Crook et al., 2012), *sent to* (McCarthy, 2015) and *convey* (West & Turner, 2016). The use of such terminology does not necessarily imply that the authors' focus is purely transmission-based; rather it reflects the way in which feedback is more commonly framed, not necessarily the way in which it is practiced. However, we have to be aware of positioning students as passive receivers of feedback through the use of transmission-focused language (Winstone & Pitt, 2017). In our interviews, several lecturers recognised that if audio-visual approaches to feedback simply replicate the transmission of written feedback without taking advantage of opportunities for dialogic interaction, then there is limited advancement of practice:

> I don't, um, see a discussion. I mean that's very one way isn't it?... I think
> it's very one way…If I was to audio record something and then send it to

a student, then that's quite…you know…they don't have any way of replying do they? (Participant 9)

I don't know how that's gonna improve on the written feedback …Because it's just transmission of information again isn't it? Um, and either way - auditory or through a video - you're just transmitting information. You're not … you're not promoting a dialogue, which is what I think we need. (Participant 20)

Further evidence of a transmission-focused paradigm through digital media could be seen through ways in which our participants spoke about the potential enactment of audio-visual feedback in their practice. Some lecturers suggested they would produce written feedback, convert this into an audio recording, or write a script for video feedback; essentially, verbalising written comments but increasing the workload associated marking itself:

Audio feedback, it is a minor hassle but then it would actually take about two minutes per student to transfer their written feedback into an audio one. (Participant 1)

There's an element of maybe rehearsal, cos again you can't edit what you have said. You'd have to maybe write a script first and then give the feedback to be sure that you're accurate in what you wanted to impart to the student. (Participant 24)

These quotations illustrate that common perceptions of audio-visual feedback are more closely aligned with an old paradigm, than a new dialogic paradigm. This has been recognised within the literature; for example, Mathieson (2012) explains that, in her study, video feedback did not provide an opportunity for students to have a meaningful dialogic interaction with the lecturer to clarify points raised or ask further questions. Such assertions were similarly expressed by one student participant:

Isn't 'interaction' supposed to be reciprocal? ... there was really no interaction going on. (Mathieson, 2012, p.149)

Some researchers conclude their arguments by suggesting that we need to explore how more interactive dialogue can be facilitated using technology (West & Turner, 2016).

Dilemma 2: Practical or pedagogic concerns?

Discussion of the pragmatic elements of audio-visual feedback practices are a ubiquitous feature of the literature (cost, time-efficiency). As portrayed in Figure 1, the use of audio-visual feedback in the old paradigm leads to discourse surrounding practical elements of the transmission process; in contrast, new paradigm discourse surrounding the pedagogic elements of the process might predominate. Many authors identify practical advantages of audio-visual feedback practices, being low-cost and time-efficient means by which feedback can be provided to students (Ice et al., 2007). Lunt and Curran (2010) argue that audio feedback is more time-effective for the lecturer, as it is possible to speak in one minute that which would takes six minute to write. The efficiency of audio-visual feedback in terms of facilitating more detailed comments was discussed in several papers (Mathieson, 2012; Mathisen, 2012; Turner & West, 2013,).

Counter to the time-saving argument, Morris and Chikwa (2016) suggest that by the time the lecturer has recorded audio feedback, saved it locally, uploaded it to the VLE and notified students of its return, it will have taken longer in total than the process of writing comments. Similarly, King, McGugan, and Bunyan (2008) claim to have seen no evidence that audio-visual feedback saves time. Nevertheless, the potential impact on the workload associated with providing feedback to large cohorts is a commonly discussed issue in the literature. Fawcett & Oldfield (2016) argued that "audio feedback may be an effective way of managing high marking loads and the student need for timely feedback" (p.81). When faced with increasing demands from other areas of their roles, it is easy to see why arguments relating to time-efficiency and workload reduction might appeal to lecturers and mangers alike.

Practical issues were also dominant in discussion of concerns and challenges regarding audio-visual feedback (Fawcett & Oldfield, 2016). According to Marriott and Teoh (2012), screencast feedback is typically two to three minutes in length, resulting in upwards of 60MB of data. As such, delivery of the file to students, and storage issues on University servers, were concerns. The need for a quiet space in which to record audio-visual feedback was also identified as a challenge (Hennessy & Forrester, 2014). Arguably, focusing on such pragmatic issues risks

trivialising the learning-focused element of the feedback process, directing attention towards reducing file size through limiting the length or using compression software.

This focus on the pragmatic elements was also evident in our interview data. Many respondents explained that they were often reticent to engage with technological advances because they perceived them to be overly complicated, whilst offering limited time-saving benefits:

> You have to save an audio file and then upload the audio file, so rather than making things simpler; it makes them more complicated (Participant 8)

> I feel a lot more positive about audio feedback, but I still don't do it because to me it feels that that's going to take so much more time to do. (Participant 27)

Similarly, respondents expressed scepticism about the use of video feedback, perceiving it would require a lot of effort to produce, even citing logistical concerns about their appearance on video:

> For the effort it would entail, I can't see that I'd want to do it. (Participant 15)

> I tend to do my marking at home when I don't have to get ready to go out. I feel like I'd have to get ready for work to then be presented on video. (Participant 2)

Whilst practical issues are important in affording effective use, a more fundamental concern should be the impact on learning and student uptake of feedback. Within the literature that we reviewed, we saw evidence of students adopting a transmission-focused mind-set in response to audio-visual feedback, as illustrated in this example from a student in Marriott and Teoh's (2012) focus groups following the release of screencast feedback:

> To me to get the feedback from my teacher like face-to-face, I'm going to have to make an appointment and I go and see him and he doesn't have time, he's just going to have to rush through it sort of thing, but now I

have it all the time and can watch it whenever I want, you know that's
much easier for me, I prefer doing it that way to be honest. (p.594)

This student interprets screencast feedback as facilitating engagement, and removing the need for them to go and see their lecturer (where further dialogue potentially could take place). The student also identifies that a key benefit of screencast feedback is that they can revisit it whenever they wish. For example, Crook et al., (2012) and Cranny (2016) argue that digital feedback is permanent; it can be stored and re-watched, paused, rewound and played multiple times. However, students are afforded the same agency when receiving written feedback. We would argue that moving towards dialogic use of audio-visual feedback requires a stronger focus on the students' volition to engage with and utilise the feedback in subsequent work and not the implied convenience of where it is stored or accessed.

Dilemma 3: Satisfaction or student uptake?

We argue that the adoption of any learning technology should be driven by a sound rationale, but what should the focus of this rationale be? The literature appears to contain many instances whereby the efficacy of audio-visual feedback is related to students liking or preferring it (Crook et al., 2012; Marriott & Teoh, 2012; West &Turner, 2016).

One explanation for students' preference for audio-visual feedback is relational; students often report that face-to-face dialogue with a lecturer can be uncomfortable and troublesome (Henderson & Phillips, 2015). This is often believed to be the case because meeting in person with a lecturer can threaten a student's self-esteem, as the power imbalance in that setting makes students particularly aware of the limitations of their own understanding (Carless, 2006; Sambell, 2013). In this sense, then, it follows that it is "*more congenial and less ominous to embrace oral formative feedback*" in an audio-visual feedback environment (Hennessy & Forrester, 2014, p. 783). This is particularly true for students new to higher education, who *"may feel uncomfortable, shy, and/or insecure in approaching a tutor for help…we have found that audio feedback goes a long way towards resolving these kinds of issues"* (Hennessy & Forrester, 2014, p. 783).

We would argue that audio-visual feedback only 'resolves' these relational issues if students feel more comfortable approaching lecturers for further dialogue following audio-visual feedback, in comparison to written feedback. There is some evidence that audio feedback makes lecturers appear more approachable (Jackson, 2012), and that lecturers appear to be more supportive through the medium of video feedback (Henderson & Phillips, 2015). Both Orsmond et al., (2013) and Fawcett and Oldfield (2016) recognise the potential for audio-visual feedback to serve as a starting point for further one-to-one dialogue. It is possible that these reasons, alongside the perception of greater detail in audio-visual feedback, go some way to explaining students' preference.

Whilst important, student satisfaction should not be the primary motive for practitioners to adopt audio-visual feedback; rather, emphasis should be placed upon the effect that feedback medium has upon student uptake of the feedback. Whilst breaking down relational barriers between markers and students could in principle facilitate greater uptake of feedback, the primary focus is not placed on what the student does with the feedback next, nor dialogic interaction with the student. In our interviews, the lecturers were clear in demonstrating scepticism surrounding the learning benefits of audio-visual feedback. They wanted evidence of its effectiveness upon student learning in comparison to written feedback:

> I'm not sure what the benefits might be for students on the whole, if there's any evidence to show if that's more beneficial than a written piece. (Participant 5)

> Is there evidence that that makes students listen to it or read it or take it in or act on it? I'd love to see that before we bring in yet another method of giving feedback that students may or may not engage with really... Whether we think that by putting it as a podcast or videos or you know, does that make any difference? I'd love to know; cos my personal view is [...] probably not. (Participant 10)

Our exploration of the literature did lead us to identify some evidence of the impact on student uptake of feedback, albeit largely based on self-report measures. At the very basic level of engagement, Lunt and Curran (2010) reported that students were ten times more likely to open a file containing audio feedback, than to collect hard-copy written feedback. In

Merry and Orsmond's (2008) small scale study (n=15), students found the audio feedback easier to understand and implement; furthermore, they revisited the feedback, and sought further clarification from lecturers, indicating a stimulation to engage in face-to-face dialogue.

Students often report that they would be more likely to take action on the basis of audio-visual feedback. For example, 69% of students in the study reported by Carruthers et al., (2015) agreed that they would later revisit the audio feedback when preparing their next assignment. After experiencing video feedback, 95% of Turner and West's (2013) participants reported a preference for using this form of feedback in future assessments, rather than written comments. Whilst these examples might on the surface align with a new paradigm focus on student uptake of feedback, no data were collected to confirm whether students' perceptions translated into actual behaviour. Hennessy and Forrester (2014, p. 784) reported that following formative audio feedback, final year students discussed a positive impact on their behaviour: *"'Hearing the spoken words of their tutor often prompted [students] to read more widely in order to address deficiencies in their work or to consider certain areas of their work more critically, as recommended"*. The impact of these actions on students' learning is not evident, and in one study, students reported that the impact of audio-visual feedback on their learning had been 'moderate' (Gould & Day, 2013).

Whilst student satisfaction is likely to be important in facilitating engagement with feedback, emphasis should be placed on evidence of the efficacy of the approach in facilitating uptake of feedback. We found minimal evidence of the behavioural impact of audio-visual feedback; instead, self-reported intentions to engage with feedback formed the dominant source of evidence.

Facilitating dialogic use of digital tools in feedback practice

We began this chapter by emphasising the importance of dialogue in the feedback process, through the conceptual lens of a 'new paradigm' approach to feedback (Carless, 2015), where student uptake of feedback, and the impact of feedback on learning, are of primary focus. We proposed three 'dilemmas', representing differential framing of audio-visual feedback within an 'old paradigm' and 'new paradigm' model of feedback. We drew upon our exploration of the literature on audio-visual feedback practice, alongside data from interviews with 28 UK

academics. We end by proposing some recommendations for facilitating dialogic use of audio-visual feedback.

1. A design stance on audio-visual feedback

If audio-visual feedback is to operate within a new paradigm model, then the design of the module or programme needs to create opportunities for the students to use feedback in subsequent assessments. Whilst it is clear that more detailed recommendations for development can be provided through audio-visual feedback (West & Turner, 2016), the value is limited if students do not have the opportunity to implement these in subsequent assessments.

In designing assessment processes where students have the opportunity to enact audio-visual feedback, Espasa, Guasch, Mayordomo, Martínez-Melo, and Carless (2018) present a useful tool which can be used to evaluate the extent to which a particular design is dialogic in nature. For example, Espasa et al., (2018) suggest that highly personalised feedback is likely to facilitate greater dialogue, as is feedback that includes suggestions, comments and explanations. Whilst audio-visual feedback can be used to provide such feedback, perhaps timing is more important in terms of creating a dialogic feedback environment; formative opportunities, where feedback occurs prior to summative assessment, may be more likely to encourage student uptake (Boud & Molloy, 2013). There is greater dialogic potential in assessment designs where feedback is provided prior to submission, and where the student has the opportunity to resubmit work following enactment of such feedback (Espasa et al., 2018). There is potential for audio-visual feedback to facilitate this process; for example, students could submit drafts of an assignment, for which lecturers or even peers could provide brief audio or screencast feedback. Feedback is likely to be of greater use at this point than after the submission of an assignment at the end of the module (Carless, 2015). Thus, rather than adding to lecturers' workload, this approach might represent 'redeployment' of feedback resource to a more impactful stage in the process. It is perhaps worth reflecting on the example from Hennessey and Forrester's (2014) study discussed under dilemma three; when receiving formative audio feedback, students "*read more widely in order to address deficiencies in their work or to consider certain areas of their work more critically*" (p.784). This example of uptake of feedback is firmly in line with a new paradigm approach.

Furthermore, if students discuss their formative feedback with lecturers or peers, the dialogic potential is further enhanced.

2. Seeking the 'value-added' of audio-visual feedback

Many of the participants in our interview study noted that audio-visual feedback could be implemented in a way that merely replicates the transmission of comments. To facilitate dialogue requires us to consider the unique potential afforded by audio visual feedback. Many of the proposed advantages (more detailed comments; opportunity for students to revisit comments at a later date) would also apply to traditional handwritten feedback, or electronic annotation feedback. Hennessy and Forrester (2014) clearly demonstrate an approach to seeking the 'value-added' potential of audio-visual feedback:

> More detailed feedback on a written piece of work could, arguably, be delivered through track changes or other functions of electronic feedback. However, what enhances the value of audio feedback for students is the level of appreciation they experienced by being 'spoken to' (Hennessy & Forrester, 2014, p. 782)

Thus, the pedagogic potential should be an important part of the decision to adopt audio-visual feedback. If it is used in a way that replicates the transmission of written comments, just through a different medium, then the rationale for its use appears to be lacking. Our exploration of the literature did reveal areas where audio-visual feedback can provide this 'value-added'; for example, through screencast technology, students can see tutors actively demonstrating how to correct one example of an error in their work (in situ), leaving them to apply this feedback to the remainder of their work. This may well enhance students' agency to successfully implement feedback (Pitt, 2017; Winstone et al., 2017). Similarly, where lecturers can appear to be more supportive and approachable through audio-visual feedback, this could break down relational barriers to student engagement in one-to-one dialogues with lecturers.

3. Audio-visual feedback as a stimulus, not a replacement, for face-to-face dialogue

Discussion of the literature and our own data showed that both lecturers and students recognise the fact that the 'dialogue' within audio-visual feedback environments is often

15

asynchronous. It is important that audio-visual feedback is not seen as a replacement for face-to-face dialogue, rather as a stimulus for dialogic interactions. For example, Carless (2015) proposes that dialogue can be facilitated by a lecturer asking questions to students through their feedback.

There is clear potential for audio-visual feedback to remove some of the barriers that might inhibit face-to-face dialogue between students and lecturers, leading to uptake of feedback. However, we would argue that in order for dialogic audio-visual feedback to become mainstream practice in higher education, we need to build a stronger evidence base not just of students' perceptions of the medium and of the efficiency and practicalities of this form of feedback. Instead, as clearly identified by the lecturers in our interviews, we need evidence of the impact of audio-visual feedback on students' behaviour and their learning outcomes. This evidence is much more challenging to obtain than that from self-report measures, which perhaps goes some way to explaining why *"empirical research of actual feedback dialogue and its effects is limited"* (Ajjawi & Boud, 2018, p.2). In their systematic review, Winstone et al., (2017) also noted the predominance of self-report measures of behaviour and engagement with feedback, rather than behavioural outcome measures. Citing Macgregor, Spiers, and Taylor (2011), Hennessy and Forrester (2014, p.778) state that *"researchers rarely attempt to understand more comprehensively audio feedback efficacy or measure resultant student learning".* The impact of audio-visual feedback on students' learning is central to a new paradigm focus, and stronger evidence of the behavioural and cognitive effects will enhance our understanding of how audio-visual feedback can 'add value' to dialogic feedback environments.

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