Audio-visual Feedback in Higher Education: Students' Interaction, Engagement, and the Cognitive Dimension

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ABSTRACT

Feedback is highly instrumental in any form of assessment, and the crucial role feedback plays in accelerating progress is prominent. However, in Higher Education (HE) institutions, student satisfaction with feedback quality needs to correspond to this acceleration of their academic progress. This paper centres on the concept of *audio-visual feedback (AVF)* and adds to the emergent literature on digital-based feedback. The positioning of this paper is a rethink of audio-visual feedback processes. Digital technologies present the scope for modelling interaction and engagement with feedback by lecturers, hence addressing issues constantly raised in research about feedback literacy and student engagement, interaction, and utilisation of feedback. In doing so, this paper introduces cognitive processes involved in the interaction with feedback, that is, the tacit component, and establishes a way forward with rethinking feedback processes. Key conclusions from this paper indicate that the multimodal nature of feedback needs further research and theorising. Key findings from this paper assert effective audio-visual feedback processes improve students' interaction and engagement with feedback in HE. Improved understanding of the cognitive dimension, particularly the tacit component, is essential in enhancing students' experience of feedback processes.

Keywords: *feedback, feedback literacy, audio-visual, digital education, cognitive processes, tacit dimension, multimodal, higher education.*

INTRODUCTION

Feedback is essential for personal growth and academic improvement of learners. There is a conflict in feedback processes; students' perception of feedback quality does not align with the academic progress they are making. Feedback on assessments in Higher Education (HE) has, therefore, seen a long history of interest and research in order to understand this misalignment. Typically, in the United Kingdom (UK), digital technologies enable feedback processes in HE. There are various formats for feedback; however, as Nicol (2012) specifies, there is a relatively heavy reliance on written feedback or text-based feedback. This paper taps into the developing interest in non-written forms of feedback, for example, audio feedback (Gould & Day, 2013; Lunt& Curran, 2010; Voelkel & Mello, 2014; Dixon, 2017), and introduces the concept of *Audio-Visual Feedback* (AVF). Through audio-visual feedback, feedback processes take on a multimodal (see Lacković and Popova, 2021) quality, which reflects the learning, teaching and assessment experience of students, in particular in the HE context in the United Kingdom (UK).

Audio-visual feedback is located in the domain of digital-enabled feedback and, in general, incorporates video feedback and screencast feedback. Acknowledging the contribution by Yiğit and Seferoğlu (2021), this paper on audio-visual feedback examines the potential for digital technologies to contribute towards allaying current dissatisfaction with feedback quality in Higher Education. In contemporary research, feedback has been examined from various dimensions: socio-cultural, socio-constructivist, technical (e.g. moderation procedures), and political, amongst others (Malecka, Boud and Carless, 2022; Boud and Malloy, 2013; Sutton, 2012). This paper addresses the cognitive dimension, in particular, the tacit (see Sutton, 2012) constituents of feedback, hitherto relatively unaddressed in research on feedback processes and feedback literacy. Feedback is understood in this paper as a process (Winstone et al., 2021), in contrast to the now-defunct conceptualisation of feedback as information.

CONTEXT

This small scale research was undertaken to introduce audio-visual feedback within a university setting within the Education Studies subject specialism. The no-exam exams context is important in grounding the justification for this AVF research. The subject area prides itself in valuing what students bring to the learning environment; thus, a key requirement for learning, teaching, and, ultimately, assessment practices is to enable students to draw on their experience. This university mirrors the current trend of a high proportion of written feedback (see Marriott and Teoh, 2012) and emerging interest in audio feedback, with Parkes and Fletcher (2016:1047) presenting audio feedback as "one promising alternative" to written feedback. This is a post-1992 university in the UK. The rationale was to trial a new feedback format to add to the developing portfolio of feedback formats at the institution. Variety in assessment was well established, and complementing this variation feedback processes held potential for improved student experience.

Tutorial sessions were designated for formative feedback processes at the university. As per student request, individual or small group tutorials are organised. During the tutorials, an assignment plan is discussed, and formative feedback provided on the content of the assignment plan. In most cases, students made available the written assignment plan prior to the tutorial session; this was helpful in enabling preparation for the feedback dialogue and engaging in a rich feedback dialogue, in this case, formative feedback. This small scale study gained ethical approval in compliance with the university's ethics clearance procedures in 2018. The university where this research was conducted is made up of a very high proportion of students from widening participation (HESA, 2022) backgrounds. A higher than UK average number of students at this institution identify within the mature student (HESA, 2022) age marker of over 21. As a requirement of the degree programme the students were studying on, all students were either in employment or volunteering. The majority of the students on this programme were working in schools and other educational settings and were engaged in non-teaching and other learning support roles whilst studying

part-time. The no-exams content emphasises knowledge application of academic knowledge in practice-based contexts. With the experience of supporting learners, the students on this programme were aspiring towards becoming fully qualified teachers and some pursuing leadership roles in Special Educational Needs and Disabilities (SEND) in their various areas of professional practice.

At the institution, feedback dialogue (Ajjawi and Boud, 2018), as already specified, is planned into the assessment design, reducing issues around current debates (see Nicol, 2012) on the dialogic nature of formative feedback. The assessment on which this research is based is for an undergraduate module which runs across two semesters, with semester one content seamlessly leading into semester two content. A multiplicity of feedback points, both formative and summative, were therefore available. This small-scale study collected data only from the first semester of the module, a module using a face-to-face standard classroom-based delivery mode without an online teaching component.

MULTIMODAL FEEDBACK?

Learning is multimodal in nature (Lacković and Popova, 2021), and at university, there is a taken-for-granted inference which includes learning within a digital sphere (Bearman, Neiminen and Ajjawi, 2022). With a heightened requirement for independent learning, there is the likelihood for independent learning to be multimodal for most of the students. Independent study requires an amalgamation and synthesis of various relevant sources, and students typically engage in digital-enabled learning (see Bearman, Neiminen and Ajjawi, 2022) to examine sources via a range of modes. As well as learning, teaching in the digital context and Virtual Learning Environments (VLE) also takes on a multimodal quality. A similar variety is noticeable in types of assessment. However, feedback processes still lag behind in multimodality.

Feedback processes with written input or text-based feedback disproportionally represent students' experience of feedback (see Marriott and Teoh, 2012). There is arguably minimal usage of digital-based feedback, constituting audio and audio-visual feedback processes. West and Turner (2015) found in their research that students' preference for video screencast feedback was significantly higher when compared with written feedback. Beyond preference for a particular mode of feedback, more current research (for example, Yiğit & Seferoğlu, 2021) interrogates the utility of feedback and finds students using video feedback make more of a success of feedback processes than students with written feedback or text-based feedback. This paper comes from the premise there is limited research in the area of engaging with screencast digital technologies for feedback processes (Harper, Green & Fernandez-Toro, 2018). The unique context of my research on the utility of audio-visual feedback specifies audio-visual feedback was the choice even though the teaching mode was standard classroom-based. Existing research on digital-based feedback, for example, video feedback (Lowenthal 2021; Burop, West and Thomas, 2015), tends to be based on online and blended learning contexts. This multimodal feedback experience

was innovative and offered an addition to feedback formats at the institution.

AUDIO-VISUAL FEEDBACK

Audio-visual feedback (AVF) is the term for digital-based feedback that combines audio content and visual content. Flexibility is highly recommended in terms of how this combination is realised (for example, see Mathews, 2019). While this research used Panopto screencast (Panopto, 2022) to facilitate the feedback processes, the expanse of platforms and variation in affordances of digital technologies only strengthen the argument for more usage of audio-visual media for the purposes of feedback on assessments. The synchronicity of audio-visual feedback is one that does not need to be overemphasised; synchronicity of pinpointing of the item being referred to (visual) in combination with verbal content (audio) either for corrective purposes or informative purposes improves the precision and clarity of the feedback. With improved levels of clarity students are better equipped with the feedback literacy requirements to begin the process of transfer of feedback learning. Lowenthal (2021) acknowledges the precise and also dynamic quality of screencast feedback. Through the use of audio-visual feedback processes, the student sees the specific segment of their work benefiting from the feedback, hears the corrective or informative content, and, even more pertinent, is privy to the assessor's thinking processes related to the task or assessment requirements.

MODELLING FEEDBACK ENGAGEMENT THROUGH AUDIO-VISUAL FEEDBACK

Research on feedback has continued to highlight student dissatisfaction with their feedback, and various reasons have been provided by researchers and academics. Yiğit and Seferoğlu (2021) states that the quality of feedback is the main issue for students, listing three key indicators which should improve students' perception of feedback quality: feedback needs to be understandable, facilitate revision and improvement of student work, and finally show a careful handling of the affective elements of learning. The contribution of this paper is to showcase audio-visual feedback processes and their aptitude for modelling academic expectations of engagement with feedback. A rethink of audio-visual feedback processes is vital in producing an improved feedback experience. The procedures for written feedback are, to an extent, limited and tend to be minimally effective when transferred to audio-visual feedback. The woes of the digital university are exemplified in the transfer of content onto digitised spaces with little or no improvement in pedagogical outcomes (Bearman, Nieminen and Ajjawi, 2022), a situation easily recognisable with feedback processes. More experimentation and theorisation are required to understand and establish audio-visual feedback processes.

In this research, an item from the data captured a student request for written feedback as well as the screencast feedback "would liked to have written feedback too". This small scale study did not engage in text-based or written feedback; audio feedback comments

were combined with the visual content of the assignment on the computer screen. The thinking behind exclusively audio-visual feedback, and no written feedback, was the scope for precision, engagement, and interaction, which it readily affords. Precision is essential, as it sets the parameters for verbal feedback. Will and Turner (2015) found a significantly high preference by students for digital-based feedback. Furthering the discussion on students' perception of feedback quality, Yiğit and Seferoğlu (2021) argues that digital technologies improve students' perception of feedback quality.

COGNITIVE PROCESSES AND AUDIO-VISUAL FEEDBACK

There are tacit elements to feedback that students need to decipher (Sutton, 2012). Considering the cognitive dimension and the challenge to work out what feedback means and, more importantly, the unspecified intention of the assessor, the feedback processes are not as straightforward or as smooth as merely participating. This is more complex. The student needs to think about their feedback and also think about what the lecturer is thinking about whilst engaging in the feedback. Written feedback could find itself in a restricted position with regard to how much lecturer thinking can be made explicit. Audio-visual feedback, this paper argues, opens up the scope for externalising the thinking behind the feedback, including explicit directives on how to use the feedback. A combination of *the why* and *the how* of the feedback maintains a clear focus of feedback dialogue. The think aloud (Ericsson, 2013) opportunity which audio-visual feedback affords enables the lecturer to model and externalise the thoughts and cognitive processes involved in the assessment marking process, an area not yet considered explicitly in research on feedback. It must be emphasised here, and in agreement with Lowenthal (2021), that digital affordances do not automatically make the feedback useful. The externalising of the cognitive processes, as specified already, is the growth opportunity.

DEMOCRATISATION OF FEEDBACK IN HIGHER EDUCATION

Research on feedback in HE, which addresses how students engage with feedback, highlights the challenge of students not knowing what to do with feedback; hence, issues with feedback literacy (Wilder-Davis, 2021). According to Ryan et al. (2022), there is a level of disconnect between academic intent and the ability of the learner to make sense of the feedback. Audio-visual feedback manifestly handles this issue; through engaging with AVF, the process of feedback in itself, with the visual and auditory stimuli, becomes a teaching process of how to think about assessing students' submissions. With the students empowered through engaging not only with their feedback but the underlying thought processes that the assessor engages in, this study finds that AVF takes on a new dimension which addresses some of the identified shortcomings of the feedback experience. McDonnell and Curtis (2014:944) bring to the forefront this challenge through their research with Education Studies students, which aimed to democratise and, indeed, humanise the feedback processes through the use of meaningful dialogue. Meaningful feedback dialogue, according

to Ajjawi and Boud (2018), is made up of three key components: cognitive, socio-affective and structural. The findings from McDonnell and Curtis (2014) assert that as well as social and emotional components of feedback, "they also go beyond this to show how the process afforded students a greater insight into how lecturers think". Another study with a similar sample of participants, Education Studies students, reiterates cognitive processes involved in the feedback processes, emphasising the urgency to externalise thinking, in this case, the thinking by the students Nicol (2020). In this paper on audio-visual feedback, the case is made for more research on externalising the thinking processes of the lecturers when engaging in feedback processes–a call for more research on the tacit component and the cognitive dimension of feedback.

The democratisation process embeds humanising, liberation and autonomy. Audio-visual feedback consolidates these essential constituents. To set this humanising process into context, the power held by lecturers and teachers in giving feedback (see Matthews et al., 2021) must be actively addressed. The discourse of 'giving' feedback is one which is discarded as redundant in contemporary research on feedback. The discourse of 'giving' feedback places the giver in a more powerful position than the receiver. At the HE level, and indeed, in democratically informed educational environments, equality and humanisation should underpin the feedback process. The tacit constituent of the giver-receiver model verges on marginalisation, resistance and disengagement. Carless (2015:28) states, "Unless students are engaging with and acting on feedback, it is limited in its impact on their learning". Freedom of information is foundational in the democratisation of feedback; freedom of information entails demystifying the thought processes of the lecturer or teacher as they engage with the feedback process. Externalising the feedback thinking facilitates access to knowledge. Accessibility of knowledge in this way empowers the use of feedback in a portable and flexible manner. This means feedback generates learning opportunities with the potential of utility beyond the immediate context. Freedom, portability, accessibility, and flexibility humanise and democratise the feedback process. In some contexts in HE, assessment is geared towards flexibility and accessibility. However, the power imbalance in the feedback process is yet to shift. Deeley (2017) confirms that democratisation could enable students to adopt deeper approaches to learning.

FEEDBACK LITERACY

Audio-visual feedback adheres to the conceptualisation of feedback literacy (see Carless & Boud, 2018), asserting that AVF is a form of feedback which supports learning (see McLean, 2018). Feedback literacy research has evolved over the last few decades from a student-centred focus towards gaining a better understanding of lecturer feedback literacy, with the current turn to mutual responsibility within feedback processes (Kleinjn, 2021). Three core areas of feedback literacy are appreciating feedback, making judgements, and managing affect. In addition to these three, two essential activities support the development of feedback literacy–peer feedback and the use of exemplars (Carless and Boud, 2018). It

is worth acknowledging insights from current research on feedback literacy might not be transferable across contexts (universities); in addition, there are subject-specific orientations involved in feedback literacy (Winstone et al., 2022).

Sutton (2012) highlights the complexity of gaining feedback literacy through the identification of three core dimensions: epistemological, ontological and practical. Sutton (2012) arrives at these dimensions of feedback using a sociological lens, arguing that feedback is a social process relying heavily on relationships and a range of social factors. Similar to the context in which Sutton (2012) conducted their research at a university with a high proportion of students from a widening participation background, this audio-visual feedback research pays close attention to some of the challenges in obtaining, engaging and interacting with feedback for this widening participation identifier group of students. Some generics about feedback literacy might not be applicable to students with our demographics. There is the imperative, therefore, for feedback processes to cater for demographic identifiers in order to engage with the related nuanced student experience. A blanket feedback policy with an assumed nature of implementation could inadvertently present barriers in the feedback processes.

Audio-visual feedback is not the perfect solution to all HE assessment and feedback challenges, as Woods (2021) points out the current critique of audio-visual feedback when it is used for information transmission. The case being made here is for embedding think aloud methods to model how feedback should be used by the student. In the feedback process, modelling of the cognitive processes involved in feedback should be entrenched. This means audio-visual feedback is not a 'reading' of what should have been written feedback; it is a feedback, 'feed-in', and feedforward engagement showing students how to think about feedback and how to use feedback. In this instance, feedback refers to evaluation of the submission, the new coinage *'feed-in'* specifying corrective purposes, and feedforward, clearly stating strategies for application and portability beyond the module. Boud and Soler (2015) introduce feedback in the context of assessment sustainability and the role of feedback in learning. Externalising the cognitive processes involved in feedback through audio-visual feedback processes contributes to feedback literacy, learning and overall student experience.

THEORETICAL UNDERPINNING

Contemporary models of feedback literacy have been highly influenced by sociocultural theory (see Winstone & Boud, 2019; Chong, 2020) with the sociocultural approach to feedback and social constructivism (Malecka, Boud & Carless, 2022), a socio-constructivist approach. This has led to the formulation of helpful feedback models, for example, the ecological model by Chong (2020). Socio-culturalists point out the relational and identity constituents impacting on feedback processes, and socio-constructivists rely on social elements of ongoing construction of meaning. Studies on feedback in HE using sociocultural approaches have emphasised a range of elements: good quality feedback as central (see

Boud and Molloy, 2013), feedback loop and the imperative to 'complete' the loop (Carless, 2018; Boud & Molloy, 2013), and the even bigger argument of entrenching feedback into the 'underbelly' of course design and module design (Boud & Molloy, 2013). The essence is for the dialogic quality of feedback to take primacy for the students, in addition to the development of self-evaluation skills. Regardless of theoretical positioning, choice of feedback model or approach, there is agreement on the central place of dialogue. This centrality of dialogue generates surprise from McDonnell and Curtis (2014) of the minimal consideration or lack of prominence given to the political and democratic positionings of feedback, especially since democratic principles and theories are revered in all areas of education and learning. Democratic principles have, therefore, been the foundation of another model: the democratic feedback model (see McDonnell and Curtis, 2014).

It is vital to acknowledge in the first instance that assessment is increasingly regarded as central in the rigorous course and, subsequently, module design process. In tandem with assessment creation, there must be in-depth discussion of the nature of feedback processes suitable for the discipline (Winstone et al., 2022). The argument being made on this occasion is for the type and nature of feedback to become part of the assessment writing process embedded within the module and course design. Feedback must become an explicit part of the planning stage for a course and its related modules. The current situation with Module Data Sets (MDS) and Assessment Briefs, as they are termed in some universities in the UK, have the propensity of being 'tick box' processes stating whether feedback will be via the HE institutions' Virtual Learning Environment (VLE) or an alternative format. The unique nature of the portability of feedback in HE demands better than current engagement with the feedback processes.

STUDENTS' ENGAGEMENT WITH FEEDBACK

Contemporary research seeks an understanding of how HE professionals ensure learners engage with feedback in ways that 'support' learner independence and academic growth (see Ryan et al., 2021; Dawson et al., 2019). How might we actively plan for feedback to enable learners to locate its portability? Feedback, it must be acknowledged, features prominently in HE assessment processes, however, the call here is for feedback to be repositioned from the tail-end to the planning stage at the level of course design. It is imperative that this repositioning is addressed in HE in order for feedback to reveal the portability that it holds. This repositioning is an innovative outlook on feedback within and across the HE landscape. In order to undertake this empirical study, careful thought was placed on the nature and type of feedback. This module in this research spans two semesters and necessitated a return to the feedback from Semester 1 in order to explicitly address the content of Semester 2 and its related assignment. Again, without seeking to generalise and in conformity with the qualitative tradition which this empirical research embraces, a reminder should be made about single semester modules relatively limited in the portable items from feedback processes. In line with the innovation regarding audio-visual feedback, the repo-

sitioning of feedback processes into programme design adheres to the call for innovative practices within HE (for example, Falchitov, 2013; Christensen and Eyring, 2011). With the innovative digital transformations handled in this paper embedded, the resultant outcome is feedback which is meaningful enough to complete the feedback loop. Embedded in this cyclical form is the potential for academic growth and learner independence based on feedback portability**.**

RESEARCH DESIGN

This is a small scale qualitative research undertaken in a small post-92 university in the UK, pre-pandemic in 2017. A total of seventeen data items were generated consisting of audio-visual feedback recording, paper-based qualitative survey response, and interview transcript. Staff and students were participants in this study. The length of the audio-visual feedback output ranged from 10.7 minutes to 19.2 minutes. Panopto software data demonstrates from 1 view of each audio-visual feedback output to up to 6 views. There were 11 audio-visual feedback items; of the 11, 8 gained 100% listening completion by the students, with non-completion in 3 items ranging from 35% to 72%. At the research site, the use of audio-visual feedback was an innovation. Written feedback saw a level of proliferation with emerging usage of audio feedback. Considering the demands of innovation are best suited to an exploratory research approach within the qualitative research tradition (Cohen, Manion & Morrison, 2018), the decision was made to use this in this audio-visual feedback research. Following the exploratory approach and qualitative methodology, the research paradigm for the study is interpretivism. Evolving reflexivity throughout the research conceptualisation, and current dissemination, centres on student experience. Primarily, the purpose of the research is to be a medium for the voices of the participants (see Kate Wall & Elaine Hall, 2019) rather than fitting the research to any pre-determined realities. Reflexivity ensured the researcher isolated and addressed insider bias, which would creep into subjectivities. Power considerations also featured in the reflexivity during this research, being reflexive about power dynamics within feedback processes. Prevalent in HE institutions is an oppressive system of feedback which is majorly owned by the assessors (powerful) and to be engaged with by the assessed (powerless), although there are emerging inklings of movement away from these top-down types of feedback. The inability of current feedback research to notice these ethical issues could perhaps be explained using the review on the use of theory by feedback and assessment researchers (Nieminen, Bearman and Tai, 2022).

Boud and Dawson (2021) present a paradigmatic shift in feedback processes becoming more equitable, moving away from one-dimensional responsibility for engaging and interacting with feedback processes. To add to this, Carless and Winstone (2020) capture the interconnections of feedback literacy between students and lecturers. Even with the rise of staff and student partnerships, feedback remains the provenance of the assessors in most universities. Nieminen (2022) points out that staff and student partnership activities and

projects are yet to catch up in the area of assessment. Until this power dynamic changes (see Maleka, Boud and Carless, 2020), it appears students' interaction and engagement with feedback will remain limited. That which Boud and Soler (2015:403) envisage is the conceptualisation of the feedback process "as a co-productive process".

Feedback processes in HE need to be democratised (see McDonnell and Curtis, 2014), and students liberated from this oppressive arrangement if universities, particularly HE in the UK, seek to respect the concept of students as partners. Sutton (2012) identifies the sometimes condescending attitudes towards students' feedback literacy, which I believe reflects these power dynamics, derived from the lack of awareness of the social class barriers relating to learner identity. Nieminen, Bearman and Tai (2022) raise the issue of minimal use of theory in assessment and feedback research, resulting in loss of understanding of intersections in students' experiences. A more in-depth understanding of the privileged positions of lecturers and reduced agency of students, for instance, must be accounted for in the ongoing debate on feedback literacy, another example of the tacit dimension to feedback. Malecka, Boud and Carless (2020) are instrumental in explicating the importance of mutual responsibility, with Boud and Dawson (2021) implementing the mutual responsibility positioning for interacting and engaging with feedback by both students and lecturers with their creation of the teacher feedback literacy competency framework. The model by Kleijn (2021), an instructional model for student feedback processes, balances out the evolution of shared responsibility for feedback literacy.

QUALITATIVE SURVEY

The main research methods used are qualitative survey and interview. Using purposive sampling, staff and students were targeted for this study. With the argument to create a platform through which voices are heard, against the backdrop of the ongoing debate regarding how patronising it is for researchers to state they are giving a voice to the participants (Wall & Hall, 2019), reflexivity played a vital role in establishing the survey design. The epistemological influences could only point to a qualitative design, however there was the challenge of which voices to give a platform to and the risk of 'silencing' other voices by the mere selection processes. The outcome was the use of the qualitative survey method.

Participants were given paper-based survey questions to complete. The qualitative survey consisted of twelve questions, all containing pre-determined responses and additional space for reason, comment, or other additional information. Considering the paper-based format of the qualitative survey, the scope for providing additional information was a key survey design issue. Nearness to existing survey format was also important in designing this qualitative survey. Students at the setting are already familiar with mid and end of module evaluations formatted in this way with predetermined responses and room for elaboration. The justification, in consideration of demands on the participants' time, was to create a survey which could be accessed and understood with minimal input from the researcher. This justification was also located in the ethical dimension (BERA, 2018) in

terms of the ethical approval procedures at the research site and the commitment to compliance with the institution's ethical regulations.

To improve survey completion rates, it was essential for a paper-based survey to be handed out immediately after the face-to-face timetabled module time, making it easier for participants who had given consent to take part in the research. The qualitative survey method (Braun et al., 2021) ensures there is enough scope for open questions to receive individual and personalised experiences for all the participants who choose to complete the survey. It is agreed that there are some limitations to how much information could be provided in a response within a paper-based qualitative survey; however, the personalised nature of the responses reflects the individual experience in a unique manner.

UNSTRUCTURED INTERVIEW

As already stated, the second method of data collection for this study was an interview, an unstructured interview. Insider research is enhanced when careful consideration is taken of a number of influences. Insider-ness in this research took into consideration Michele Fine's 'working the hyphens' (Fine, 1994) concept, arriving at the utilisation of unstructured interviews with staff. This unstructured interview choice became well aligned with the exploratory approach to this study because of its innovative content. By engaging with staff in an unstructured interview, there was a co-construction of understanding which was both empowering and liberating in terms of the glide through the researcher-colleague (professional) continuum, almost an entanglement of the 'self' and 'other' (Fine, 1994). For example

> So, it was, when I say different, it was kind of subtly different, er as I remember, in that you had on-screen, you had the student script, you had the comments, which were provided, so the formative feedback which was written, which was the same as you might get with either Turnitin or with our own manual comment but what was distinctly different, in addition to those, erm processes, was that you, it had your voice added to it and you guided students. So, as you were talking, and let's say you said, you need further references, your mouse would roll over, and say; this is where I mean you need further references. So, you were mediating, the feedback. So, whereas when we normally give written feedback, it's, it's just our written response, what you'd got here was a combination of the written response and further illustration with your voice.

This sense of mediated feedback, as evidenced here, adheres to the imperatives for improved student engagement with feedback. Student engagement with feedback is an HE-wide demand that applies both to me in the role of researcher and to the research participant, a colleague at the same institution. As the use of audio-visual feedback was both new to the researcher and the participant, there was enough scope for enriching profession-

al dialogue, reflection, discovery, and even the opportunity to collectively pose questions. As the unstructured interview progressed, 'the space in-between' (Fine, 1994) narrowed. It could be argued this handles any preconceptions brought to the research concerning ethical issues of insider research (BERA, 2018) and researcher identity.

DATA ANALYSIS AND KEY FINDINGS

Pattern analysis and thematic analysis were selected and combined for the data analysis in this research. Qualitative surveys have unique demands on data analysis approaches, as is the case with any other methodological choices during a research process. Pattern analysis (see Jensen, 2010) leant itself appropriately to this research on audio-visual feedback. Pattern analysis commenced with frequency count. Auto-generation of 'views' or frequency of accessing the audio-visual feedback output in Panopto necessitated paying attention to frequency data. In addition to 'views', there was also data on length of recording, including percentage of video completion. Although this frequency count is similar to other qualitative data analysis approaches, for example, content analysis (see Cohen, Manion & Morrison, 2018), this current study chose pattern analysis. It is also worth reiterating frequency count in qualitative research, as opposed to quantitative, is understood to be the starting point of data analysis rather than the causation endpoint in other traditions. Informed by Bryman (2007) in establishing rigour in qualitative research by entrenching layers of interpretation, using pattern analysis for this study ensured the patterns were identified and interrogated per participant, across participants' responses and cumulatively across the data set. The survey design presented questions commencing with pre-determined response choices, followed by space for qualitative information, reason, comment or any other additional information, capturing the 'words' of the participants. The interview data was audio recorded using a digital recorder, transcribed, and anonymised for the purposes of ethical compliance and the necessities of empiricism. Notes were taken while the unstructured interview was engaged with.

QUALITATIVE SURVEY DATA ANALYSIS

The analysis of the qualitative survey contents began with the creation of a grid with the vertical axis containing the numbers of each survey item and the horizontal axis listing the response options. The grid was then filled in with 'slashes' to list the frequency of occurrence. It is important to reiterate here that frequency count in qualitative data analysis is not a result in itself; rather, it is a starting point of the data analysis. Similar versions of this nature of qualitative data analysis could be found in the Content Analysis (Cohen, Manion & Morrison, 2018) research designs. With the frequency established, the next step of data analysis was working on each of the three response options. The patterns were established per participant, across participants, the items, and the elaboration opportunities. As Byman (2007) asserts, it is vital to establish levels of interpretation as this is the hallmark of qualitative research.

The survey sought insights into students' experience of engaging with AVF for the first time. Survey questions were organised into the following themes: experience, access, quality of feedback and portability. The survey had a 5-point pre-determined response design and options for additional written information to complement the selection from the pre-determined responses. All participants agreed that their experience of using AVF for the first time was positive. Some excerpts about the experience:

"easy to follow"
"able to visually see work and hear feedback"
"more personal"

These responses demonstrate the aptitude for AVF to provide an enhanced experience of feedback. Although there was uniformity in confirming the positive experience in the pre-determined responses, in the elaboration option, one student specified they preferred a combination of AVF with written feedback. It must be noted that AVF is not discounted; however, the participant suggested retention of the old (written feedback) and the addition of the new (AVF). There is an understandable reticence in change processes, which must be taken into consideration in the inclusion of AVF.

Another theme in the qualitative survey was access. The interest with this theme was on the device used to interact with feedback. Device information was important in future planning for AVF. Responses indicate participants used both mobile phones and computers in engaging with feedback. In giving a reason for using a phone to access feedback, one participant wrote, "only thing I could access it on", whilst another wrote, "phone wouldn't let me watch". For participants using a computer-style device, the responses were: "I use a laptop…I only ever check on a laptop", and another "it didn't work", referring to a computer. As mentioned already, there are socio-economic aspects of academic life in the UK which seem to be taken for granted, and critical assumptions around technological access which play a part in students' experience. As these quotations begin to reveal, considering the demographic at the university, which was the research site, feedback design needs to factor in socio-cultural and economic elements.

The theme of feedback quality introduced reflections on engagement and interaction with feedback. Some responses were:

"all feedback has been useful"
"the verbal aspect makes me concentrate on the feedback"
"I had to make notes and pause etc."
"I just listened and followed along on the screen"
"had to keep pausing and make changes as I went along"
"needed a copy of the assignment available"

These quotations point to insights into feedback practices by students which are beneficial to HE professionals in fine-tuning feedback processes. The frequency of engagement and interaction with feedback ranged from "I only really listen to feedback once" to "listened to it 4 times". Contemporary research on feedback processes challenges researchers to find out what students actually do with feedback. The processes described by participants in this AVL trial are a window into the feedback practices of students.

As already mentioned, this module was across two semesters, and therefore, portability of feedback was entrenched in the module structure. However, it was still useful to hear the different ways in which participants engage with feedback portability, and these are captured in the following responses:

> "helpful when talking about specific parts"
> "same as written feedback"
> "I still like having tutorials"

These responses are indicative of both an appreciation of the new and a longing for familiarity. Future planning for feedback engagement and interaction would benefit from very careful and student-informed negotiated merging and choice in decision making about feedback processes. From the data analysis, it is evident that there is a marrying of academic content elements, socio-economic and cultural requirements, and reciprocity in the staff-student academic relationship. Gone are the days when feedback was conceptualised as one-directional.

INTERVIEW DATA ANALYSIS

Interview data analysis commenced with listening to the recording, transcribing, coding, and memoing, resulting in some key themes and categories, following the thematic analysis approach. Recursively interrogating the data along research methods lines and in combinations resulted in the following themes: accessibility, situatedness of time, and high quality feedback. Digital technologies are central in the learning, teaching and assessment processes in HE (Kirkwood and Price, 2014; Adedoyin and Soykan, 2020). Accessibility, in this instance, pertains to how the participants 'experienced' the technological affordances through which feedback was engaged with. Current research has isolated the basic ways in which, albeit costly, technological software and hardware are used, in most cases minimally used in other ways than information repository and/or transmission, in HE institutions. This is understood and captured in the following interview response:

> Personally, unless it's as simple as clicking and recording which Turnitin does allow, Turnitin does allow us to record 3 minutes. If it is that simple, I'll do it. But what I'm not gonna do, is go through 2-page handout which is highly convoluted which requires me to record them on multiple devices, upload etc., that is too complicating.

> If can't be done as simply as the Turnitin allows me to do, it's failed at the first hur…, for me it's fallen at the first hurdle. I feel very strongly about that.

This research presents an example of extending current usage of existing digital technologies. At this university, audio-visual feedback demonstrated an advanced use of existing digital-enabled feedback processes. In addition to the digital perspective, audio-visual feedback contributed towards a creative and academically impactful way of engaging with feedback processes.

As is the case with innovation, there were some challenges. A challenge was encountered with the Panopto screencast software for some students using their mobile phones to engage with their feedback. This says something about the nature of feedback and its overall accessibility. This ultimately reveals that in a proportion of cases, students would engage with feedback on their mobile phones: "phone wouldn't let me watch". It brings up questions around research on grades and feedback, for example, Jackson and Marks (2015) on grades and withholding grades and their related impact on students' engagement with feedback.

It is generally understood that students have a tendency to aim for their numeric mark for the assignment (Barker and Pinard, 2014) as priority rather than engage with the feedback in meaningful ways. Jackson and Mark (2015) explore the emotional effect of grading and its corresponding impact on levels of engagement with feedback, with the propensity for low marks leading to frustration and high marks to complacency and minimal engagement with the feedback in both cases. It is evident that the loop is de-linked immediately; the student seeks the mark exclusively and may or may not have to find a second occasion to return to the feedback. There are a number of challenges here: first of all, the emotional burden of assessment and feedback, levels of engagement, issues relating to engaging with feedback beyond the module, and ultimately, academic growth. This, therefore, raises the question of whether, as professionals, we have prioritised feedback in the planning phases of course design. If we know students will seek the mark primarily, how are we being innovative with our practices to ensure that at the first point of contact with their feedback, students engage with the dialogue and learning that feedback opportunities bring? This challenge is located in wider policy decision-making due to this university's Virtual Learning Environment (VLE) setup, which enables access to mark or grade before access to feedback at my institution. Any action in ameliorating this challenge requires a university-wide systems overhaul, a scope beyond the remit of this small-scale research.

In the context of this current research on audio-visual feedback, engaging with the feedback processes in the first semester holds the potential to improve performance in the second semester of the module. There is a direct relationship between the two semesters of the module. With feedback processes in the first semester, there is the expectation that if students act on the feedback, there will be an improvement in their assessment performance in the second semester. The centrality of assessment in HE (see Carless, 2015) and its re-

lated effects is evident for both engagement and alienation with corresponding outcomes of success and attrition. From this backdrop, there is the expectation for students to return to a computer or any other compatible device to engage with the audio-visual feedback. While one student responded with, "I only really listen to feedback once", another wrote, "I listened to it 4 times", and another "would liked to have written feedback too". From this small-scale study, patterns relating to how students engage with feedback begin to emerge, and further research on this would be beneficial.

THE FEEDBACK LOOP

The module for this research was across two semesters, with the feedback in semester one directly related to the requirements for semester two. There was a challenge in completing the feedback loop. The notion of immediacy of feedback (Zimbardi, 2017) was temporarily interrupted, leading to non-completion of the feedback loop. However, this loop became an *extended feedback loop* because students eventually returned to the audio-visual feedback at the point when it mattered most to make the connection between Semester One and Semester Two. The detailed nature of the audio-visual feedback, which clearly uses the cursor to locate specific areas and address them, was indispensable. Irrespective of the de-linking of the feedback loop, in this case, time passed since the initial feedback interaction almost did not matter because all the visual and audio feedback contents were still there to be accessed. It could be argued that written feedback, to an extent, has similar advantages. However, in order to capture the cognitive processes, an extensive amount of written feedback would be required, compared to putting across the same information in verbal form. The feedback loop is re-linked with the information gained by the participants, providing insights into their experience of audio-visual feedback, issues around access, feedback quality and portability. This understanding has been beneficial for a succession of students since the completion of this research. The reciprocity advocated in this study is essential in closing this feedback loop with the feedback process impacting both on the participants and the researcher.

The contribution to knowledge from this research is that it sets the stage to rethink the immediacy (see Zimbardi, 2017) component to feedback, which is applauded as a strength. Digital-enabled assessment and feedback ensure an improved quality of ongoing feedback processes because content is easily retrievable and has dynamic characteristics which facilitate interaction. Audio-visual feedback means feedback is current, explicit, available and set to be dialogic whenever it is returned in the same way in which it was accessed primarily. As Carless (2015:28) states, "Unless students are engaging with and acting on feedback, it is limited in its impact on their learning".

CONCLUSION

Feedback is a key determinant of progress in assessment. As Zimbardi et al. (2017) specify, the immediacy of usefulness of feedback is essential in establishing active engagement

with feedback. This research has established that audio-visual feedback (AVF) maintains the content of the feedback, provides targeted support, removes feedback interpretation ambiguity and strengthens active engagement with feedback. The pedagogic role of digital-enabled feedback needs to be further researched and theorised. Added to these, audio-visual feedback creates a medium for modelling how students should engage with feedback. The audio-visual feedback processes require unique procedural elements, for example, the externalising of the cognitive processes involved in engaging with feedback. In essence, audio-visual feedback fills the current gap in multimodal feedback, with the other formats being written feedback and audio feedback.

From this research, key findings capture how students interact and engage with feedback, feedback quality, their technological accessibility and, in some cases, preferences, situated-ness of feedback within a module and portability of feedback across modules. Participants have expressed positive evaluations of audio-visual feedback and enhanced levels of interaction and engagement with feedback. Both from the staff and student perspectives, ease of access appears to be paramount. This is understandable considering most of the student participants are in employment in highly demanding educational environments and this is similarly the case with the staff participants. This research also opens a window into the feedback practices of students, enabling HE professionals to review how planning for the feedback process is undertaken. There are major implications from this research on practice, policy and research. Firstly, HE professionals engaging in feedback should take into consideration the cognitive processes involved, which are located in an intricate socio-economic, linguistic, academic and cultural platform. Next, university policymakers are required to establish policies reflective of this intricate platform with an outlook of reciprocal input into university-wide feedback policy. In essence, ensuring there is active involvement of students in writing feedback policies. Finally, this research has identified a gap in research on audio-visual feedback, in particular from the cognitive dimension of understanding thought processes during feedback engagement and interaction. There is an urgent need for research in this area.

Considering that West and Turner (2015), in their findings, specify significantly higher preference by students for digital-based feedback, video screencast, over written feedback, there is an urgency for Higher Education to pay attention to the voice of the students regarding the nature of impactful feedback processes. A call to action primarily, a provision of choice, and ultimately, a contribution to solutions for inclusivity in assessment and feedback. The ultimate goal of this combination is the expected acceleration in academic growth and student independence. Sutton (2012:39), from the social perspective, asserts feedback literacy involves "feedback *for* knowing [epistemological] as well as feedback *on* knowing [ontological] so that learners have something to work with to improve their performance [practical]," demonstrating some of the complexities of feedback literacy. This paper, therefore, engages with the digital positioning and contributes towards improved understanding of feedback literacy, feedback processes, and overall student experience in HE.

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