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Audio feedback in distance design education

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Abstract
This paper reports on the use of feedback as part of a tuition strategy applied in a distance design course at The Open University in the United Kingdom. A blended feedback model (audio and summary text) was compared to the existing written-only feedback model in terms of student attainment, use, and perception. Comparison of feedback models confirms findings in the literature around the affective and interpersonal qualities of audio feedback, primarily in developing the relationship between student and tutor in a distance design education setting. The blended model demonstrated no major differences in student assessment outcome but differences in student activity and approach to feedback were observed, specifically that students engage in a series of extended and unexpected feedback opportunities beyond simple models of feedback normally assumed. It is proposed that a blended model, as part of a suite of approaches in a learning design, is more effective than either written or audio alone, allowing far richer student-tutor interactions and outcomes in distance settings.

Keywords
Distance design education, Student-tutor relationship, Feedback, Studio feedback, Feedforward,

Introduction
In design education, the master-apprentice relationship between student and tutor is a historically grounded and signature pedagogy that translated readily to the academy with the professionalisation of design education (Schön, 1987; Cuff, 1992; Shulman, 2005; Sennett, 2008). This paradigm is still very much in evidence today, albeit the authority of the 'master' and associated problems of power imbalances are being recognised and the benefits of a more nuanced relationship emerging (Webster, 2005; Lyon, 2011; I. Mewburn, 2011). More recent explorations of the student-tutor relationship demonstrate the importance of taking a student-centred approach, recognising the co-construction that takes place in positive student-tutor interactions and relationships (Orr et al., 2014; Boling, 2016; Orr & Shreeve, 2018). Research demonstrates that, instead of the tutor acting only as an authoritative expert, better outcomes arise when the tutor uses their expertise to support individual learning through a dialogic approach, where the tutor acts as a 'liminal servant'(Webster, 2004).

In a distance education setting, establishing and maintaining any form of student contact and relationship is a very different challenge (Simpson, 2008; Hill et al., 2009). Hence, how the tutor student relationship noted above is adapted to, and supported in, a distance setting requires particular attention. One key method is through assessment points and using feedback loops as key formative tuition events. Encouraging students to engage with such tuition appropriately, then, has to be supported in ways appropriate to both student needs as well as to the subject studied (Gibbs & Simpson, 2004).

Such approaches in distances education are argued to be similar to dialogic modes of continuous feedback in a traditional design studio setting, relying on the affective qualities of interaction as much as the content (Webster, 2005; I. B. Mewburn, 2009). However, the further challenge of distance is in the loss of such affective qualities, interactions, and events. This paper explores how some of these challenges may be approached in design subjects at a distance and presents a particular method (or blend of methods) of assessment and feedback that demonstrates evidence of affective engagement in assessment and tuition analogous to that seen in traditional studio settings.

Background and context

The Open University (OU) is the largest distance and part time education provider in the UK and offers under- and post-graduate degrees (ordinary and honours) in a range of subject area. The study material is designed to be studied at a distance and divided into courses (modules) of around 60 CATS points (approximately half a traditional university years) each. The OU has an Open Entry Policy with no prior qualification requirements for entry-level study, which leads to a diverse student population when compared to traditional institutions.

This study presents work from the entry level module U101: Design Thinking, which can be studied as part of the BSc / BA in Design and Innovation qualification. This course will typically have between 4-800 students in any presentation and teaching material is provided as online content in a range of media intended to be studied independently. Student tuition and support is provided through tutors responsible for the academic and pastoral support of tutor groups (20 students). Tutors are subject and adult learning experts and their role is to support students' learning both generally and in the subject, hence the relationship is closely analogous to a design education studio tutor in a traditional institution. This relationship is developed through a range of tuition activities: assessment of project work; face to face and online tutorials; online forums; and a virtual design studio. Given the nature of distance education and the importance of the tutor-student relationship in design, these tuition opportunities are critical to student success at the OU.

Assessment feedback

Assessment points in any curricula are critical opportunities for learning and especially through feedback, provided such feedback meets certain conditions. The conditions outlined in Gibbs & Simpson (2004), for example, outline and provide additional detail of expectations and outcomes from assessment that many educators might recognise. Many OU design modules are designed to meet many, if not all, of these conditions and of particular interest for the purposes of this study are:

- (Condition 6) that feedback is timely in terms of next/further learning (or clarification of prior learning);
- (Condition 9) that feedback is attended to (accessed, read, given attention);
- (Condition 10) that feedback is acted on (that actions and behaviours changes in response to feedback).

The primary vehicle for assessment are design projects (appropriate to level and stage of study), which are used summatively for assessment and formatively to provide tuition feedback. This combination of summative and formative feedback is the main means of

providing tuition to students on many modules. Students submit project assessments using CompendiumDS, software designed for use in OU design courses. This allows students to present their work and design process spatially using a range of media and text (Figure 1), giving them a freedom of expression important in articulating incomplete ideas or design steps. A key focus of assessment in design at the OU is the design process as opposed to the final design output, allowing tutors to 'see' students' thinking and support its development (Jones, 2014).

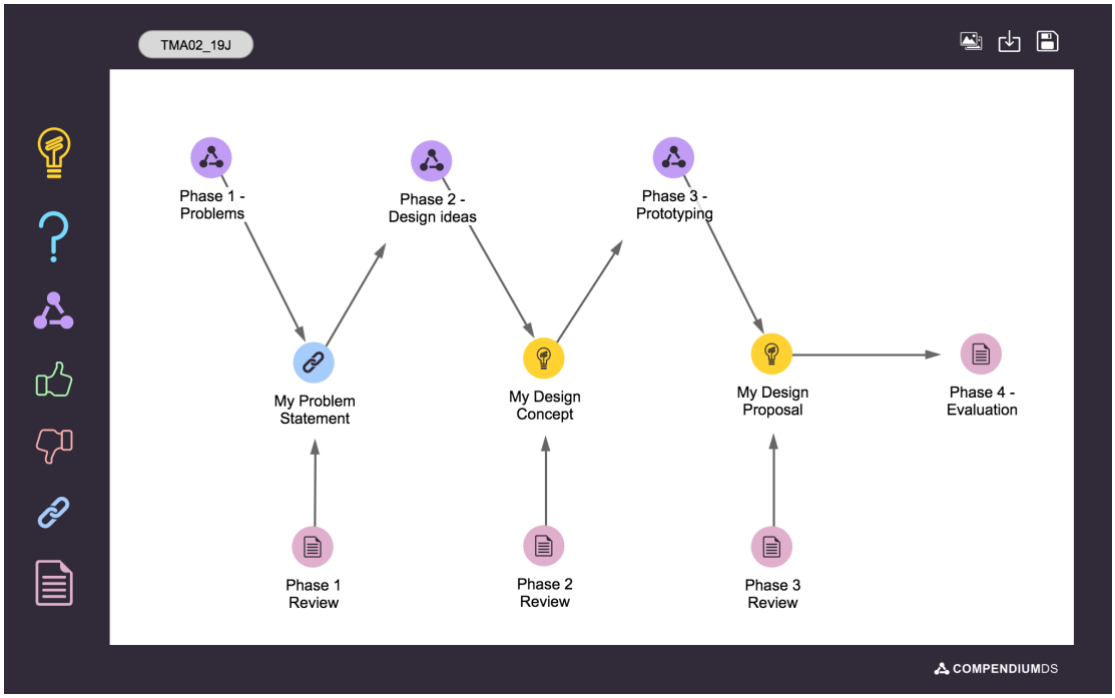


Figure 1 CompendiumDS concept mapping software showing a blank assessment template.

Students submit their work, referred to as a Tutor Marked Assessment (TMA), through an online assessment system. Tutors download and assess students' work and provide detailed feedback embedded in the CompendiumDS file, returning this to the student via the same online assessment system to complete the feedback loop.

The main motivation for the study was a concern that students were not using feedback as intended, an issue reported elsewhere (Cann, 2014). Specifically, returning to Gibbs and Simpson, it was felt that students were neither attending to feedback (looking at it, reading it, accessing it) or acting on it (changing behaviours, actions, etc. in response to feedback), both key conditions in the latter stages of the complete feedback cycle outlined in Gibbs & Simpson (2004). Here, the feedback definition of identifying the gap between the 'actual and reference levels' (Ramaprasad, 1983) is important but with the critical addition of "…when it's used to alter the gap" (Sadler, 1989), particularly relevant to design subjects.

Personal connection and presence

Creating and generating ideas in a design process is a very personal act and exposing these ideas to scrutiny and criticism can be particularly challenging for novice designers. Hence, feedback cannot simply focus only on content alone; it must also consider the ways in which it

is received and its effect. Feedback that alienates or discourages students to engage with criticism is less likely to be used, hence, how feedback is 'performed' is important.

Studies show that audio feedback can be perceived as more emotionally engaging by students when compared to other modes (Crook et al., 2012), and its contribution to pastoral support is well documented (Dixon, 2015). This happens through the communication of metalinguistic elements that are hard to reproduce in purely written modes, making the feedback feel more personal to the student (Cavanaugh & Song, 2014; Parkes & Fletcher, 2014). This can lead to perceptions of audio feedback as being easier to understand (Merry & Orsmond, 2008) and hence have a positive academic effect (Ice et al., 2007). Making use of such metalinguistics enables design tutors to be critical of student work whilst mediating this criticism emotionally and affectively (Woodcock, 2017).

Studies have also demonstrated that audio is an effective medium to project presence at a distance (Ice et al., 2007), albeit not all studies agree fully with these findings, arguing that more work in this area is required (Borup et al., 2014). Presence, how we project ourselves using extrinsic media, such as online and distance learning environments (Short et al., 1976; Munro, 1991), and can be applied usefully as a concept in distance education to improve learning outcomes for students (Munro, 1991; Armellini & De Stefani, 2016; Shin, 2002). Hence, a secondary motivation for the study was the idea that audio feedback could further improve and enhance the student-tutor relationships, possibly through presence considered pragmatically rather than formally.

Time and quality

One challenge in providing high quality tuition feedback is the time required to create it (Cavanaugh & Song, 2014). In a distance context this is often more difficult because the tutor and student may never meet face to face, hence affective and personalised feedback has to be created with little or no relationship established. At a practical level, very careful language has to be used in written feedback, sometimes resulting in long or awkward phrases required to maintain a balance between critical assessment and student motivation (Walker, 2009). Providing this type of written feedback is considered a core competency in OU tutors.

In the OU context, the time it takes to create written feedback is generally high for the reason just outline but also because assessment feedback at a distance is (usually) the primary tuition mode. Although some studies suggest that audio feedback takes longer than written feedback (Parkes & Fletcher, 2014), other studies report it as quicker or about the same time (Ice et al., 2007; Rotheram, 2009). Hence, the issue of time was a third major motivation for trialling audio feedback.

The issue of quality of audio feedback is important to consider because it does take practise and skill to record and provide the type of verbal feedback desired. Similarly, not all tutors (or students) wish to record audio for a range of reasons. At a practical level, having the right equipment, training and environment within which to record audio can also be relevant factors. Hence, the audio trial reported here was carried out on an entirely voluntary basis by tutors wishing to try the format. That said, the context of feedback matters and can significantly influence perceptions of quality. In a studio setting, verbal feedback in a tuition setting is the norm and is rarely recorded in any way. Translating to a distance setting almost always requires some artefact of communication for feedback (text, audio file, notes, etc.), meaning that it is

very often treated differently to a conversation, regardless of how it is intended. Creating the right balance between informal and formal content and tone can be important to ensure perceptions of quality and confidence in the feedback relationship.

Research aims and questions

The motivations identified above led to an early trial in 2016 to test audio feedback in a single tutor group. This identified that a blended feedback model (audio and summary text): significantly reduced the amount of time required to create feedback; provided a feedback quality that was at least as good (if not better) than the written equivalent; and allowed the presentation of very critical feedback points that were still perceived to be friendly, personal, and supportive.

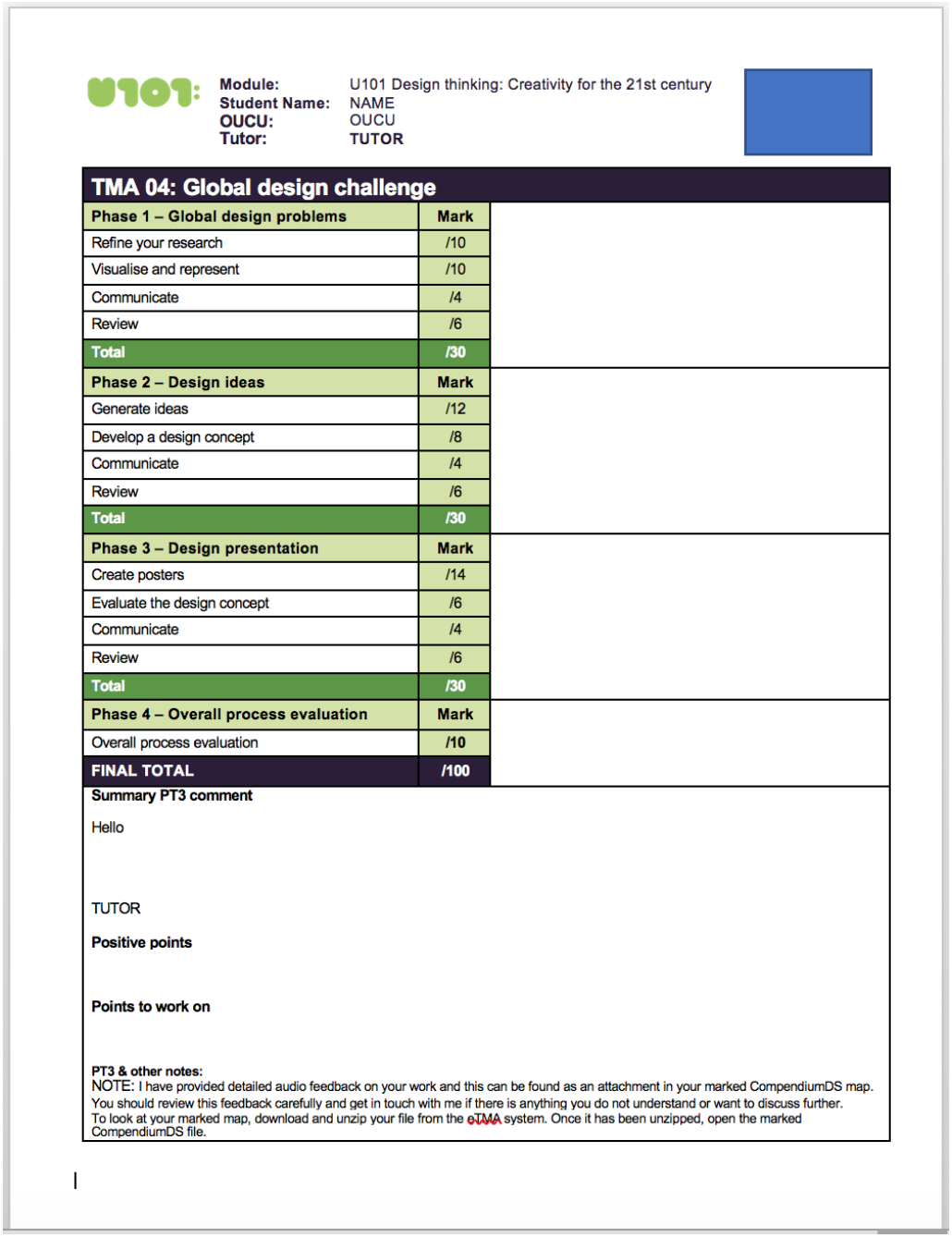
Following this, a larger trial (reported here) was designed to verify these initial findings, compare them to existing written only feedback modes, and respond to the following research questions:

- Are there significant differences in student attainment between written only and blended feedback modes?
- Are students making use of feedback and, if so, in what ways?
- What are student perceptions (positive and negative) of feedback and, in particular, critical feedback? Are they able to recognise the value of the feedback process in itself?

Method

Study setup

The study involved a comparison of two groups: written-only feedback and blended feedback. Students in both groups undertook identical assessment tasks, submitted these using CompendiumDS, and were assessed using identical course criteria by their respective tutors. Both groups received a standard (OU system) summary feedback form, containing their marks and summary plain text outlining overview feedback and feedforward points only. Students in both groups also received a returned CompendiumDS map containing feedback. The returned feedback varied by group: the written-only feedback group received a text document with detailed, written feedback; the blended feedback group received recorded audio feedback (MP3 digital file) and written summary feedback using a standard proforma sheet aligned to the marking scheme (Figure 2).



Module: U101 Design thinking: Creativity for the 21st century
Student Name: NAME
OUCU: OUCU
Tutor: TUTOR

TMA 04: Global design challenge		
Phase 1 – Global design problems	**Mark**	
Refine your research	/10	
Visualise and represent	/10	
Communicate	/4	
Review	/6	
Total	**/30**	
Phase 2 – Design ideas	**Mark**	
Generate ideas	/12	
Develop a design concept	/8	
Communicate	/4	
Review	/6	
Total	**/30**	
Phase 3 – Design presentation	**Mark**	
Create posters	/14	
Evaluate the design concept	/6	
Communicate	/4	
Review	/6	
Total	**/30**	
Phase 4 – Overall process evaluation	**Mark**	
Overall process evaluation	/10	
FINAL TOTAL	**/100**	

Summary PT3 comment

Hello

TUTOR

Positive points

Points to work on

PT3 & other notes:
NOTE: I have provided detailed audio feedback on your work and this can be found as an attachment in your marked CompendiumDS map.
You should review this feedback carefully and get in touch with me if there is anything you do not understand or want to discuss further.
To look at your marked map, download and unzip your file from the eTMA system. Once it has been unzipped, open the marked CompendiumDS file.

Figure 2 A blank summary feedback document used as part of the blended feedback.

The study sample comprised 26 tutor groups: 21 of which received written-only feedback, 5 of which received blended feedback. Both groups were informed they would receive feedback, the format it would take, and guidance on how to use it (all part of normal tutor practice).

Monitoring quality of assessment and feedback took place using standard processes: 1) statistical analyses and monitoring of all tutor assessment during the course; 2) randomly selected samples of assessments regularly evaluated by the course team; 3) end of course assessment panel with peer and external review. No negative quality issues (quantitative or qualitative) were identified arising from the study.

Student survey

Students were invited to complete an online survey to investigate perceptions of feedback. The survey was divided into four sections around: general engagement; students' responses; student activity; and general (open) comments. The survey questions adapted according to sample group (written or blended). Draft questions were iterated in consultation with institutional survey experts as part of the approval processes. Questions using statement agreement utilised a Likert scale of Strongly Disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree. The full set of questions can be found in the open data repository (https://doi.org/10.21954/ou.rd.9699236).

Towards the end of the course the entire student cohort (315 students) was invited by email to complete the survey with no difference in targeting of either group. 68 students responded (21.6% response rate), providing final survey samples of 17 students from the blended feedback group, and 52 students from the written-only feedback group, 25% and 75% of the responding sample, respectively.

The samples contain two potential biases. Firstly, being at the end of the course, the sample reflects students who were close to completing, hence students who withdrew are not represented in the study. Secondly, there may exist a 'self-selection' bias in terms of students particularly motivated to respond for particular reasons. These two biases are, however, general to distance education and the OU context and are not study-specific biases.

Descriptive statistics were used to summarise and analyse responses to multiple choice questions. Thematic analysis (Braun & Clarke, 2006) of the open text responses was carried out and coded using NVivo. A generally constructivist grounded approach to theme identification was undertaken (Charmaz, 2000) but, given the subject area, strong latent themes were quickly identified. In addition to latent themes, valence themes were also coded to include positive/negative responses. This provided a consistent coding structure of structured nodes and sub-nodes. The full set of codes and results can be found in the dataset available here: https://doi.org/10.21954/ou.rd.9699236

Results and discussion

Student attainment

Analysis of assessment results revealed no statistically significant differences between groups. The overall average cohort assessment mark was 77.1% (sd = 14.8%) and all blended feedback tutors were within one standard deviation of this and distributed throughout the overall tutor group (Figure 3).

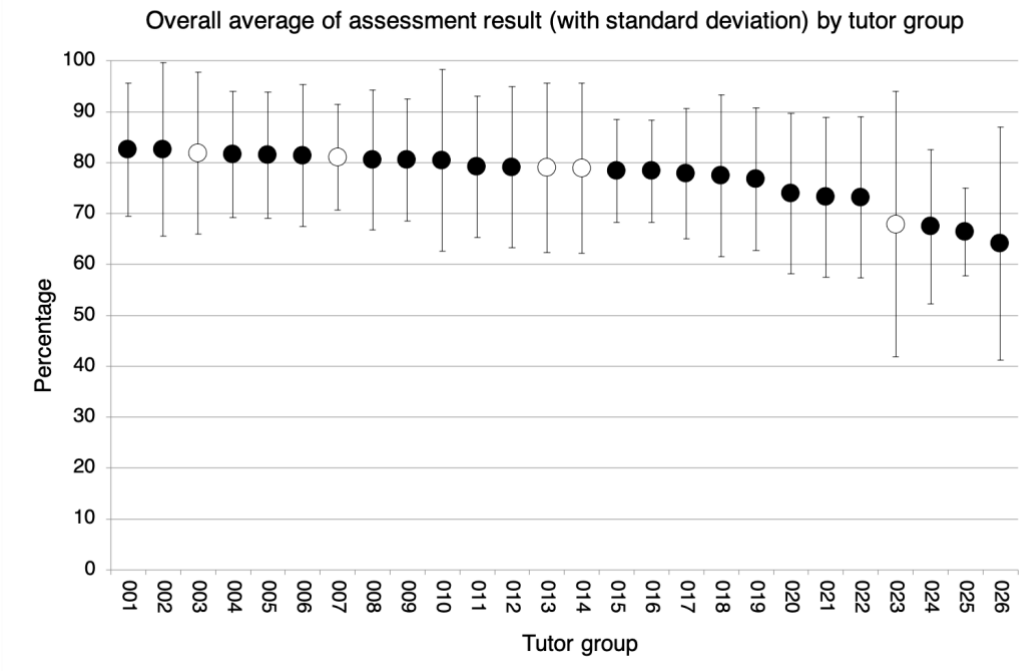


Figure 3 Overall Average assessment results and Standard Deviation awarded by tutor group. Blended tutor groups in white.

Question 02 asked about difficulties students may have had accessing (technically) feedback, and the majority of responses were, surprisingly, with the written-only feedback group: 11.5% of students reporting difficulties compared to only 5.9% in the blended feedback group. In all cases, the problems provided in the open response (Question 03) identified difficulties with institutional and online systems and tools, not the feedback mode or material itself. Technical issues around audio files and players reported in other studies (e.g. (Merry & Orsmond, 2008; Rotheram, 2009)) were not observed. This may be due to way audio is handled technically and presented to students as a directly and easily playable file in CompendiumDS, effectively removing any technical requirements or additional software. No students in either group reported difficulties in reading or understanding feedback (Question 04).

Overall, and responding to Research Question 1, the results confirm that student groups receiving blended feedback achieved similar academic outcomes to students receiving written-only feedback. No specific or persistent issues of accessing and understanding the material were reported in either group.

How feedback was used

Students reported high levels of engagement with all feedback modes and no students claimed to ignore the feedback for all assessments (Table 1). Audio feedback shows slightly less engagement in terms of reported use when compared to written only but this seems to be contradicted slightly when asked about the number of times the audio was listened to (Table 2), possibly suggesting a different pattern of use in this group.

Table 1 Question 01: After how many of your TMAs did you [read/listen to/read] this feedback?

Question 01	Written only	Blended	
		Audio	Summary
All	60 (96.2%)	13 (76.5%)	17 (100%)
More than half	2 (3.8%)	4 (23.5%)	0
None	0	0	0

Table 2 Question 06: On average, how many times did you [read/listen to] the [written/audio/summary] feedback.? (Please select one only)

Question 06	Written only	Blended	
		Audio	Summary
Once	5 (9.6%)	5 (29.4%)	7 (41.2%)
Twice	24 (46.2%)	7 (41.2%)	6 (35.3%)
Three times	9 (17.3%)	2 (11.8%)	2 (11.8%)
More than 3 times	13 (25%)	2 (11.8%)	1 (5.9%)
Not sure	1 (2%)	1 (5.9%)	1 (5.9%)

Questions 18-22 asked about specific activities students engaged in using feedback (Table 3). This shows a generally high self-reported engagement level with feedback in both groups, going beyond simply looking at marks.

Table 3 Questions 18-22 "When [reading/listening to] the feedback did you:" (respondents who selected 'yes').

Question		Written only	Blended	
			Audio	Summary
18	Look at the CompendiumDS assignment to which it related.	49 (96.1%)	12 (70.6%)	12 (70.6%)
19	Take notes.	20 (38.5%)	8 (47.1%)	5 (29.4%)
20	Share feedback with other students.	5 (9.8%)	1 (5.9%)	1 (5.9%)
21	Read all the comments.	50 (98.0%)	17 (100%)	17 (100%)
22	Read only parts of the [Feedback/Summary sheet] (and skip the rest).	0	0	0

Students using written-only feedback were more likely to look at the work they submitted compared to the blended feedback group. One of the original ideas behind the blended feedback model was that students might more frequently use the audio to listen whilst also looking at their work. This was not supported by the results, at least in the way it was assumed to take place. The 'simple' feedback model imagines a student attending to the feedback immediately, relating it to their work, reflecting on the differences, and remembering this for future use: a linear model of feedback. But the actual behaviours reported by students were more complex and nuanced than this suggests.

Firstly, there was evidence that some students do respond to feedback using both written only and blended feedback models:

> *"When read in conjunction with the compendium DS Mark they helped me to understand where I lost points and how I could improve on my next assignment."*

> *"Gives a good idea where you could improve and gives ideas of what you may have missed out."*

Both examples here show a clear recognition of the value of a simplified feedback, identifying differences between 'actual and reference levels' (Ramaprasad, 1983) and then extending this to how it can make a difference to future work, i.e. feedback used to 'alter the gap' (Sadler, 1989). Hence, both the mechanism and value of feedback is recognised by some students.

Secondly, there was some evidence of students engaging in reflection between feedback elements and events:

> *"Having a copy of the written feedback in front of me helped me to jump between different parts when reviewing my work."*

> *"It was good to reinforce the verbal appraisal with the written [summary] one."*

In addition, students using blended feedback were also more likely to take notes compared to students with written feedback (Table 3). The possibility here is that audio, rather than reading, seems to be preferred for notetaking.

Thirdly, there was evidence that students considered feedback and then related this to their work independently (i.e. did not use the feedback and refer to their work directly at the same point in time):

> *"I didn't need to look at compendium because it was obvious which parts of it related to although I looked through afterwards just to be sure."*

> *"Afterwards I checked the work it was related to. The TMA is what small enough for me to be able to know which assignments the tutor was referring to."*

This was an unexpected result and it perhaps highlights the differences between a theoretical view of how students should use feedback and what they actually do. At the OU, many students are very 'time poor', often studying at the same as having a number of other commitments. Hence, approaches such as this may well be a time-effect method of studying, albeit that may come with some 'learning risks'. Further work is needed to understand whether such strategies are effective for students, what their effects might be, and whether they can (or should) be explicitly supported using methods such as that reported.

Fourthly, students were clearly aware of feedforward: where feedback is deliberately articulated to change future work or outcomes by specifically identifying what will be expected next (Race, 2005; Brearley & Cullen, 2012). This form of feedback is used explicitly in design tuition feedback and the number of open text responses that referred to it (33 in total) suggests that students recognise this as well as its value in their personal development:

> *"The pointers on how I would have gained more points and how in the future I could gain more point [were most useful]; this is included improvements on my photographs, written work, etc."*

Finally, a further asynchronous use of feedback was identified by a number of students who made use of feedback at different times during the course. The use of previous feedback at the end of a course was to be expected and students did report making good use of this application of feedback:

> *"When I was putting together my portfolio in my final assessment I listened to the feedback over and over. This helped me focus on my weak points and improve on stronger points."*

> *"My tutor not only discussed the TMA, but also give me helpful advice for the EMA. Reading the feedback for my TMAs give me a much clearer idea of how to tackle the EMA."*

But students also reported using this mechanism between assessments and clearly recognised the value of this as a continuous feedback mechanism operating continuously as part of their learning process.

> *"The feedback built on and referred to previous TMAs which added to a sense of continuity which was useful as each assignment was so different."*

> *"Feedback helps to find out my week and stronger areas so I can focus on areas for improvement. I note it down a few comments which I could refer to in my EMA essay, especially relating to learning outcomes and whether I met them on my first assignment feedback."*

In response to the second research question, students do make use of feedback and they do so in a number of different ways. Asking whether or not students 'read feedback' is perhaps too simplistic when considering the value and purpose of feedback as part of learning. The five ways of using and interacting with feedback outlined above clearly demonstrate a more nuanced and varied approach by students than is often presented in traditional feedback theory.

Student perception

Results from the fixed response survey questions 08-17 focused on student perceptions of feedback (Table 4). The high levels of agreement demonstrate a perception of high-quality feedback by students regardless of mode, once again highlighting the importance of feedback quality as part of assessment.

Table 4 Percentage of students who Strongly Agreed or Agreed with the statement "The [audio/written] feedback…"

Question		Written only	Blended	
			Audio	Summary
08	…explained why I got the grades I did	94%	94%	82%
09	…helped me to learn and to understand the subject better	90%	71%	65%
10	…told me how I could improve in future work	90%	94%	88%
11	…helped me with future assignments and examination	90%	82%	88%
12	…was clear and easy to follow	94%	88%	94%
13	…was detailed	84%	88%	82%
14	…I received was enough	82%	94%	82%
15	…was personal to me	88%	94%	94%
16	…was motivating	84%	82%	94%
17	…was presented well	90%	88%	100%

Open comment analysis

Questions 25 and 26 allowed open comments on what students found most useful and how feedback could be improved respectively, and question 27 allowed an 'any other comments' open response. Analysis of open comments revealed an overwhelmingly positive response to both written and audio feedback with 66 references having a positive valence compared to only 2 with a negative valence. The full coding list is available here https://doi.org/10.21954/ou.rd.969923 and visualised in Figure 4.

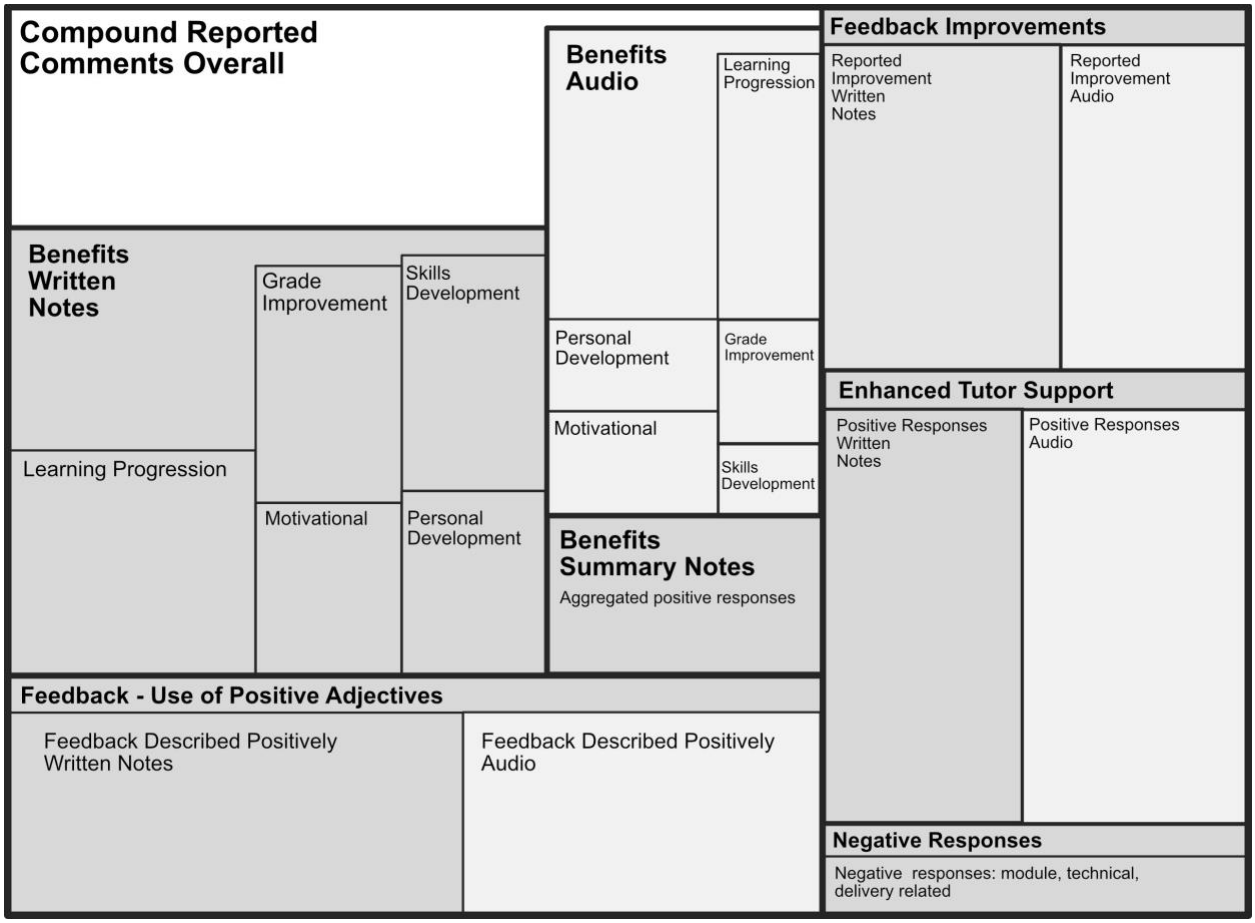


Figure 4: Hierarchy chart showing student reported feedback perceptions of written and audio feedback.

What Figure 4 reveals is that students are able to articulate details about feedback as they relate to their learning. As an example, Table 5 summarises the coding counts for perceived benefits (192 in total).

The significance of these results is not in the numbers themselves but in the qualitative nuance of responses, indicating a range of student-perceived benefits not simply limited to behavioural or transactional outcomes. For example, developing responses to critical feedback is important in design and how this is achieved, as noted previously, can be challenging. The results here suggest that the audio feedback allows critical design feedback to be made in a way that ameliorates the negative perceptions that can accompany criticism:

> *"I also felt the feedback felt less critical and more motivational than written can sometimes feel. You have addition of the tone of the tutors voice to help convey the message."*

> *"Felt a more personal, honest feedback."*

What is revealing is that students also recognise this and, going further, link it to factors that relate to successful learning, such as motivation:

> *"For instance written feedback can potentially seem quite negative but with an enthusiastic and kind voice behind it, it can be more motivating can seem more constructive."*

> *"The tutor was enthusiastic and that's helped hugely with my motivation."*

Or confidence:

> *"The feedback I received give me confidence in my ability and confirmed that I had approached the assignment in the correct manner."*

The critical point here is to note both the students' perception of effect and the awareness of effect. The first is useful enough but the latter demonstrates a relationship of trust between student and tutor as well as developing aspects of self-learning and agency.

Table 5 Analysis of open text responses: Number of coded instances for Feedback Benefits

Code (and sub-codes)	Description	Files	References
Feedback benefits overall (blended)	Combined responses of audio and written feedback that cite particular feedback mechanism benefits.	5	192
Benefit - audio	Overarching sub-category of cited benefits of audio feedback.	4	48
grade improvement	Cited benefit - improvement of grade - audio	1	4
learning progression	Cited benefit - contribution to learning progression- audio	3	9
motivational	Cited benefit - pastoral/motivational encouragement - audio	2	7
personal development	Cited benefit - contributes to personal development - audio	2	7
skills development	Cited benefit - contribution to skills development - audio	1	2
Benefit - written	Overarching sub-category of cited benefits of written feedback.	5	89
grade improvement	Cited benefit - improvement of grade - written	3	14
learning progression	Cited benefit - contribution to learning progression- written	4	23
motivational	Cited benefit - pastoral/motivational encouragement - written	3	11
personal development	Cited benefit - contributes to personal development - written	2	9
skills development	Cited benefit - contribution to skills development - written	3	13
Benefit - summary	Responses that are essentially summaries of benefit value of written feedback.	2	15

The significance of these results is not in the numbers themselves but in the qualitative nuance of responses, indicating a range of student-perceived benefits not simply limited to behavioural or transactional outcomes. For example, developing responses to critical feedback is important in design and how this is achieved, as noted previously, can be challenging. The results here suggest that the audio feedback allows critical design feedback to be made in a way that ameliorates the negative perceptions that can accompany criticism:

> *"I also felt the feedback felt less critical and more motivational than written can sometimes feel. You have addition of the tone of the tutors voice to help convey the message."*

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What is revealing is that students also recognise this and, going further, link it to factors that relate to successful learning, such as motivation:

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> *"The feedback I received give me confidence in my ability and confirmed that I had approached the assignment in the correct manner."*

The critical point here is to note both the students' perception of effect and the awareness of effect. The first is useful enough but the latter demonstrates a relationship of trust between student and tutor as well as developing aspects of self-learning and agency.

In a design context, the trust developed through the student-tutor relationship is, as noted previously, critical and its value is also clearly evident to students evidenced in unsolicited comments (Table 6).

Table 6 Analysis of open text responses: Number of coded instances for 'Tutor support'

Code (and sub-codes)	Description	Files	References
Tutor support	Responses that specifically refer to quality of tutor support or tutor/student relationship.	3	34
Tutor support negative	Responses that are specifically focused on some negative aspect[s] of the tutor/student relationship.	2	2
Tutor support positive	Responses that are specifically focused on some positive aspect[s] of the tutor/student relationship.	2	32

In a traditional setting the tutor-student relationship depends on physical, synchronous interaction which is an obvious challenge at a distance. Expressing and signalling presence can ameliorate such issues of isolation and improve learning at a distance (Gunawardena & Zittle, 1997), and it is through elements and interactions such as feedback that it can be signalled (Munro, 1991; Armellini & De Stefani, 2016). It can also be signalled through audio feedback (Ice et al., 2007) and the open comments suggest some recognition of this, particularly in social and interpersonal terms difference :

> *"I enjoyed the feeling of a personal connection with my tutor."*
>
> *"It was good to hear a human voice explaining things. Much better than written feedback."*

Again, how this translates to developing a learning relationship as well as an awareness of this is what is particularly interesting. For example:

> *"I think the most useful aspect of feedback is tutors pickup on things that students are not aware of doing. Little bad habits as in my case."*

In the comment above, the student could be argued to be indicating their presence through a personal characteristic (habits), that they know their tutor also knows about this (relationship), as well as how that is useful to them as a learner (to identify things they were unaware of and improve them).

Finally, there is some evidence of awareness of, or even developing, the more subject-specific form of design identity, a critical part of the overall learning journey in design (Cross, 2004) and something just as important in a distance context (Lanig, 2019). This has been linked to the idea of 'design presence' in some studies (Jones et al., 2020). In this early course, as expected, students perceive their tutor to exhibit such a domain-specific identity:

> *"My tutor showed good examples of work which helped me to produce better quality outcomes."*
>
> *"It is important to link the comments with the work especially if it [is] regarding images. It is good to look at the images as if I was sitting with my tutor."*

What is unclear was whether this informed students' own design presence in any way and a future direction of inquiry would be to test this, particularly at more advanced levels of learning.

Negative responses

The number of negative comments was small compared to the number of positive responses. The majority of negative comments (7 of 10) were not directly related to feedback issues but to aspects of the course itself, its delivery mode (online), or other specific and personal matters (Table 7).

Table 7 Analysis of open text responses: Number of coded instances for 'Negative experience'

Code (and sub-codes)	Description	Files	References
Negative experience	Overarching category that cites a range of negative experiences	5	10
negative feedback online VLE		2	2
negative feedback OU environment-related		1	1
negative feedback-related	Negative comments that are specifically critical of aspects of feedback	2	3
negative module-related	Negative comments focused on module itself	2	3
negative tutor-related	Negative comments that directly relate to the tutor.	1	1

There were only two recorded instances of contextually negative commenting on feedback. Even so, one of these (from a professional sound engineer) was not critical of audio feedback in itself, but rather the technical recording quality of the audio feedback:

> *"As a recording engineer I prefer to be more professionally recorded. I just find whole recordings are little poor in general. We try and take good quality photos and write English well but we don't seem to care about audio recordings… not yet"*

This comment, like many others, assumes the effectiveness of the blended model and seeks to improve it, a position reflected by other student comments around future improvements, such as: expanding to video feedback; including audio bookmarking features; or to simply have more of it.

Summary

Blended is best

The finding that blended feedback was used in student revision and personal reviews of work is offered as a solution to the problem of audio-only being problematic (Woodcock, 2017; Rasi & Vuojärvi, 2018). This study demonstrates that using audio as part of a blended approach, has the greatest potential to improve feedback, supporting findings elsewhere (Carruthers et al., 2014; Rasi & Vuojärvi, 2018). The unfortunate framing of audio as an 'either-or' choice of feedback mode is argued to be problematic in that it simplifies what is a complex learning practice.

Taking a blended approach moves beyond a simplistic model and responds to other critical issues around using media in too narrow or too broad a sense. For example, using audio only can make it difficult to use as feedback because of the linear nature of the media (Parkes & Fletcher, 2014), but by having both audio and summary, the feedback can operate at both 'timescales'. Conversely, providing a range of media does not necessarily offer the types and flexibility of choice students require for effective learning habits (Mandernach, 2009), hence, by providing a limited, but effective, choice of feedback a more targeted and resource-effective approach can be taken.

The blended model offers a greater range of options for personal study, combining the known benefits of audio feedback with newly identified habits of learning and feedback use. Providing choice increases the chances of feedback being used; improves students' ability to amend the feedback gap; and develops student learning competencies and attitudes.

Reflection, feedback and feedforward

The choice available in blended feedback is not only limited to mode, but also to when (and how) feedback is used. Immediate student use of audio serves to positively reinforce affective aspects of learning (connection, presence, confidence, etc.), whilst later reflective use, especially of the summary text, serves to close the feedback loop when engaging in the next assessment task.

To support this, feedforward is argued to be as important as feedback, particularly in a subject such as design where past processes are easily projected to future actions. This is argued to be the critical component of this feedback model and where it has the greatest potential to 'alter the gap (Sadler, 1989). When this feedforward is reinforced in assessment feedback, longer loops of continuous feedback emerge between assessment points which, in turn, become routine in student behaviour. Again, it is the blend of both immediate and longer-term reflection that is argued to be of greatest benefit to students.

Critical but supportive

Many studies have linked the affective and personal properties associated with audio feedback and this study confirms many of these. But what is also demonstrated here are the links between these and student development (not just learning), as well as students' ability to consciously recognise and value these properties. Student capacities and attitudes matter just as much as skills or actions in design education (Kimbell & Stables, 2007), a fact that can be difficult to communicate to novice designers. By signalling this importance through the critique and feedback process students are able to make such realisations for themselves. As with the previous points, it is the blend of both critical and supportive commentary that seems most effective – in other words, the operational affordances of an instructional act (such as the summary feedback sheets) in combination with the affective properties of the tuition act (the audio feedback delivered conversationally).

In summary, the results outline positive differences in affect, preference, and perception of a blended mode of feedback and as part of a wider provision of high-quality feedback in a continuous process. It is fair to conclude that there are no single best approaches to suit all students in all conditions, but strong evidence is presented to support subtle differences in practice that support better tuition practices under particular conditions and that address issues identified in previous studies. Taking both a student-centred and subject-oriented approach to the blends of modes of feedback offered is argued to be more valuable than asking whether one or the other is better. Most importantly, it is possibly the recognition of this by students in developing their own learning practices that is the most effective indicator of success.

Statement on open data and ethics

The survey questions, text coding, and quantitative results data from the survey are available here: DOI: 10.21954/ou.rd.9699236

All survey data was collected using (Anonymised) institutional procedures and systems that deal with student permissions, ethics, declarations, and use of student data.

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Appendix A: Adaptive survey questions and structure

Part 1

The first set of questions asked a series of direct questions with different response types appropriate to the question. Students in the blended feedback group were asked a similar question for both the audio and summary feedback elements.

No	Written feedback	Responses
01	[written] Your tutor provided written feedback on your TMA. After how many of your TMAs did you read this feedback? [audio] Your tutor recorded verbal feedback on your TMA in a spoken message. After how many of your TMAs did you listen to this feedback? [summary] Your tutor provided written feedback on your TMA by completing a feedback summary sheet. This showed your mark and key points. After how many of your tear is did you read this feedback?	All More than half None
02	Did you have difficulties in accessing the [written/audio/summary] feedback?	Yes / no

03	Please explain why you had difficulty accessing the [written/audio/summary] feedback.	(open text box response)
04	When you accessed the feedback, did you have any difficulties in reading or understanding it?	Yes / no
05	[If 04 was yes] Please explain why you had difficulty [reading/listening to] the [written/audio/summary] feedback.	Open text entry box
06	On average, how many times did you [read/listen to] the [written/audio/summary] feedback.? (Please select one only)	Once Twice Three times More than 3 times Not sure
07	On what device(s) did you [read/listen to] the [written/audio/summary] feedback from your tutor? (Please select all that apply)	Desktop computer Laptop computer Tablet Smartphone e-reader Other (Not applicable

Part 2

Part 2 contained 10 multiple choice questions (Questions 08 – 17), using the following response choices:

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Each question was preceded by the text: "To what extent do you agree, or disagree, with the following statements about the [written/audio/summary] feedback you received from your tutor? (Please select one answer in each row)"

No	**Written only**
08	The feedback explained why I got the grades I did.
09	The feedback helps me to learn on to understand the subject better.
10	The feedback told me how I could improve in future units.
11	The feedback helped me with future assignments and examination.
12	The feedback was clear and easy to follow.
13	The feedback was detailed.
14	The amount of feedback I received was enough.
15	The feedback was personal to me.
16	The feedback was motivating.

17	The feedback was well presented.

Part 3

The following questions were asked as a list of questions with response options

- Yes
- No
- Not applicable

Each question was preceded by the text "When [reading/listening to] the feedback did you:"

No	Question
18	[Look at / Listen to] the CompendiumDS assignment to which it related.
19	Take notes.
20	Share feedback with other students.
21	Read all the comments.
22	Read only parts of the [Feedback/Summary sheet] (and skip the rest).

This section ended with open text entry boxes response for the following questions:

No	Question
23	Please briefly explain if and why you found doing this/these beneficial.
24	[Conditional on Q 21] On the Last page you said you only read parts of the [written/summary] feedback. Why did you not read all of the written feedback from your tutor?

Part 4

The final section used open entry text boxes to solicit responses to general questions, as follows:

No	Question
25	What did you find most useful about the [written/audio/summary] feedback?
26	In what ways could we improve the feedback.
27	At the start of the questionnaire you say that you did not read any of the [written/audio/summary] feedback. Was there a reason you decided not to?
28	Do you have any other comments about the feedback and tutor support provided in U101?