AN INVESTIGATION OF WHAT FEEDBACK STUDENTS RECOGNISE AS FEEDBACK

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ABSTRACT
The paper reports on a study conducted with final year undergraduates on a product design course, in the UK, to attempt to better understand how they both interpret and respond to feedback on their academic work. The starting point for this study was the relatively poor scores attained for the elements of assessment and feedback in the National Student Survey (NSS) results for this course. The paper draws upon an existing body of literature around assessment and feedback related to the NSS results nationally. Based upon the literature an intervention relating to an element of assessment was made with these students and data collected on the students' response to this intervention. The results of analyzing this data suggest that while students' responded positively to some aspects of the intervention it is apparent that students' still struggle to understand how to deploy the feedback to improve their work. The final part of this stage of the research involved a second intervention with the same student cohort that attempted to ascertain what they would like to receive in terms of feedback.

Keywords: Assessment and feedback, product design and engineering design.

1 INTRODUCTION

This paper reports on research that considered how undergraduate students in design understand what feedback on their academic work actually is and how to use it and is closely aligned to the conference theme Design & Engineering Pedagogical Practice. Issues related to students' not understanding feedback have been highlighted in the UK by the annual National Student Satisfaction Survey (NSS) scores for some years [1] but for the purpose of this paper it is important to note that the feedback to which the NSS refers is considered to be written formative feedback on assignments.

The literature surrounding the 'feedback gap' is wide but distinguishes the meaning of feedback as falling into five categories, ranging from correction of understanding to a student's longitudinal development [2] but research suggests that the different understanding of feedback held by tutor's and students' contribute to confusion about what feedback actually is [3].

This paper reports on a study carried out at Wessex University with final year undergraduate students of Product Design that was aimed at understanding what its students consider feedback to be. NSS scores are consistently weakest for assessment and feedback for this course. As part of the assessment of their final year project work all undergraduate design students at Wessex are required undertake a Concept Design Viva (Viva 1) and a Detail Design Viva (Viva 2). Although marking criteria has been provided in the Project Handbook and feedback has been always been provided, qualitative comments from the NSS suggest that students do not see this as feedback as a quantitative mark is not given. Hence, the introduction this academic year of a new feedback form which while still not providing a quantitative mark does indicate a profile against each marking criteria. This study sought to firstly, determine what these students' think of as feedback, and secondly, whether the changes made to the written feedback have produced a positive response from students' in terms of recognising it as feedback and seeing its usefulness.

2 LITERATURE REVIEW

The literature surrounding the 'feedback gap' is wide but suggests that the meaning of feedback falls within a typology of five modes: "correction of understanding; reinforcement; forensic diagnosis; benchmarking to a student's longitudinal development (feed-forward)" [2, p278] but research suggests that the different understanding of feedback held by tutor's and students' contribute to confusion about what feedback actually is [3]. Orsmond and Merry [3, p126] suggest that students 'do

not hold a homogenous view of feedback and that students' find it difficult to act on feedback unless discussion is also held with the tutor. Results from the same paper suggest that most feedback is largely focused on correction and praise with few tutors providing feed forward, that is, how to approach future work. Interestingly, the results from the students suggest that the majority use feedback into order to work out what tutor's requirements are which leads to "not developing into biologists, but merely mimics of biologists." [3, p133]. A significant recommendation is to give feedback that requires self-assessment and getting students to collect feedback together and to consider trends with a personal tutor.

Price et al [2, p279] make the important point that "feedback can only be effective when the learner understands the feedback and is willing and able to act on it", and that the ability to do this is affected by the emotional impact of the feedback. Similarly to Orsmond and Merry, Price et al suggest that feedback is often viewed as being on student work that has been completed and not seen relationally to the future and that students' find it difficult to see feedback as useful to the whole course experience and not just a specific unit or assignment. Nicol [4, p501] supports the view that feedback requires something more than the written form but recognises that in a mass higher education system the "written comment has become detached from the supportive context". He suggests a model based on a dialogical framework which includes getting students to identify the criteria for assessment to establish a context as well as asking them to identify the kind of feedback they would like as well as using the concept of peer-critique. Race [5] however, looks at feedback more broadly and suggests that formative feedback is perhaps more important than summative. He [slide 13] posits methods for being able to:

1. Give better feedback to more students in less time.
2. Choose feedback methods where the student learning payoff is high, and stop wasting your time on feedback that isn't used.
3. Prevent marks from detracting students from useful feedback.
4. Use student self-assessment as a way of giving them really useful feedback.

3 THE INTRODUCTION OF AN INTERVENTION

Both the NSS 2014 data related to the questions on Assessment and Feedback for Product Design at Wessex University:

1. The criteria used in marking have been clear in advance - 46%
2. Assessment arrangements and marking have been fair – 60%
3. Feedback on my work has been prompt – 48%
4. I have received detailed comments on my work – 48%
5. Feedback on my work has helped me clarify things I did not understand – 48%
   and internal feedback, known as MUSE, taken from final year Product Design students on their final year project Nov 2014,
6. Feedback on my work has helped me clarify things I did not understand – 47%
7. Feedback on my work has been prompt – 50%

Indicate a clear issue with assessment and feedback and that students' perceptions of the feedback they received did not match those of academics, a phenomena confirmed by the literature.

Race, reporting on the outcome of academic staff input into a workshop run at Wessex University in Nov 2014, demonstrates that academics do recognise most of the best practice identified in the literature, such as using peers; discussion and dialogue rather than written [5, Slide 30]. Race also offers advice such as linking feedback to learning outcomes; providing it at the beginning; using it to clarify standards and expectations and stop them concentrating on the mark.

Taking inspiration from the literature, and particularly from the Race workshop, a new feedback form was devised (see Figure 1) for the first viva which assessed students' conceptual design (Viva 1). As the adoption of this form was new, an explanation to its use was provided to students prior to the assessment taking place. In addition to using this form for written feedback students' were also given the opportunity to have a dialogue with their personal project supervisor regarding their performance. There were 10 academic staff members engaged in supervising Product Design final year projects when this study was conducted.

Unit:	**Design Projects 3**	**Name :**	
Level :	**H**	**Hand-in date:**	
Assignment No:	**Viva 1**	**Supervisor :**	

Lecturer Feedback
For Viva 1 Concept Design you are expected to:

	Below Threshold	Threshold	Good	Very Good	Excellent
Have a complete final concept design and provide evidence that the design process is being followed.					
Have a final concept design that satisfies the market in terms of customer, price and quantity, provide evidence of research and justify the technical feasibility of their choice.					
Discuss function, materials, manufacturing, aesthetics and ergonomics with defensible reasoning.					

What are the areas of improvement needed?

Figure 1. New feedback form

4 METHODOLOGY

This research is interested in determining the perceptions of feedback held by product design students at Wessex University and whether the intervention made to the nature of feedback on the first piece of assessment for their final year project changed those perceptions. The study adopted a qualitative methodological approach, and is planned to be the first in a longitudinal sequence of studies.

To investigate whether the changes made to the method of feedback for Viva 1 had changed students' perceptions about feedback; a questionnaire was devised and distributed to the student cohort a few weeks after they had received the feedback. The questionnaire adopted a Likert Scale, ranging from 'definitely agree'/ 'mostly agree' to 'mostly disagree'/'definitely disagree' as the basis for collecting empirical data. This provided an opportunity for comparison to be drawn in relation to the data obtained from the NSS 2014. To obtain a level of richness that cannot be obtained from Likert Scale survey the questionnaire included the opportunity for respondents to add their own comments against each question. The questions were adapted from the NSS as well as from the literature:

1. Do you think the criteria used in marking were made clear in advance?
2. Did you understand how the marking criteria were going to be applied?
3. Do you now understand how you performed against the marking criteria in Viva 1?
4. Do you think you have received detailed comments on your project work to date?
5. Do you understand what you need to do to improve your project work for the future?
6. Do you feel the information provided in the proforma was useful for the progression of your project?
7. Do you think the comments on the proforma on your work has clarified things you did not understand?

Formal ethics approval was obtained prior to the commencement of the study, the participation was voluntary and individuals were free to withdraw at any time. Anonymity has been maintained for both individuals and institution.

5 RESULTS

The questions posed in the survey were broadly focused around a binary divide. On the one hand, an exploration of student perceptions of the feedback mechanism was made (questions 1, 2, 4 and 7) and on the other an enquiry into whether the information fed back to students (questions 3, 5 and 6) developed their knowledge. The work of Hattie and Timperley [6, p86], who provide a conceptual

analysis of feedback, suggest these latter questions, which explore 'how am I going?', 'what to do next?' and 'where am I going?' are essential for effective feedback.
Figure 2 shows the overall results of each question in the questionnaire.

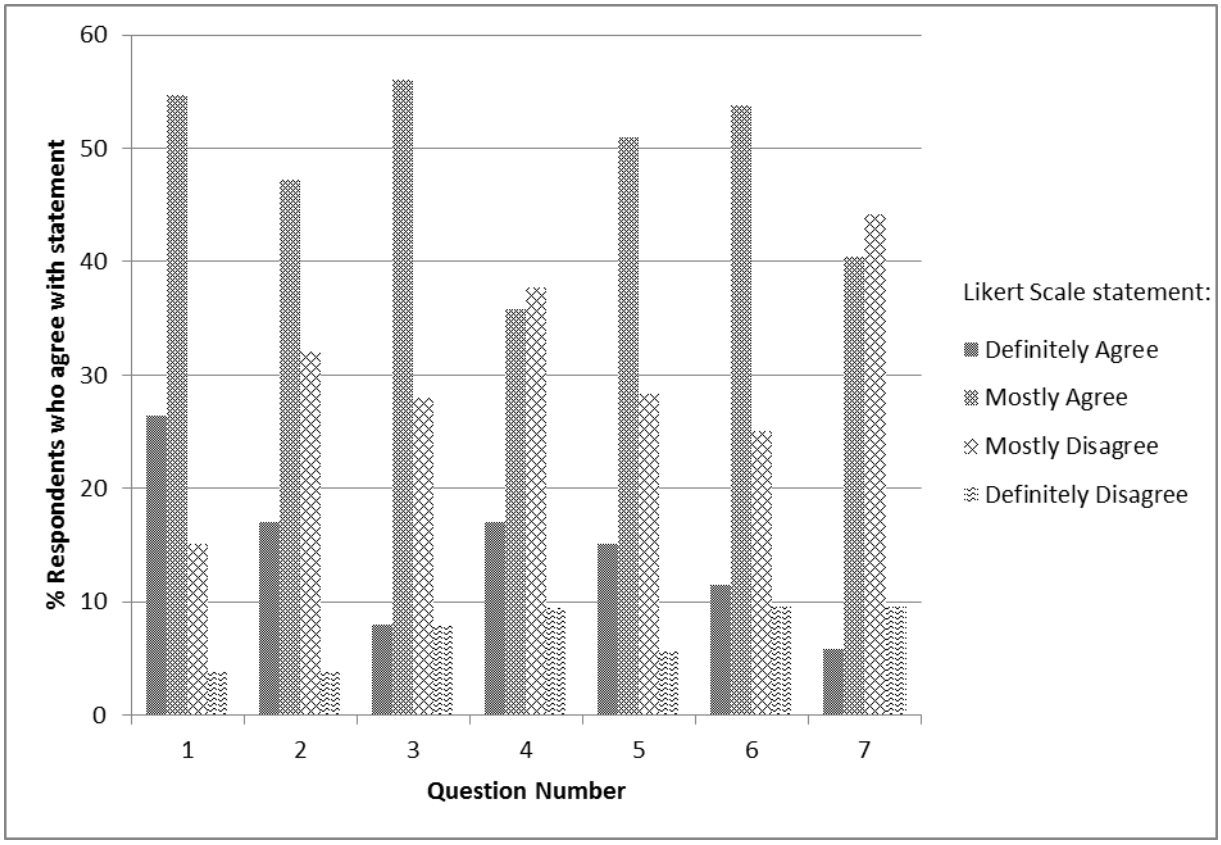

Figure 2. Results of Questionnaire

Ninety-one per cent (n=53) of the final year product design student cohort participated in the survey and of these a high proportion, slightly over 81% (n=43), considered that they were aware of the criteria used in marking in advance of undertaking the viva (question 1) . Of these, over a quarter (26.4%, n=14) 'definitely agreed'. However, just under two thirds (64.2%, n=34) considered that they did not understand how the marking criteria would be applied by their lecturers (question 2). Whilst one student commented that s/he was *"given the information … and individual lecturers made sure we knew what to do"*, the majority of students who commented believed the marking criteria to be *"too broad"* and *"open to interpretation by the assessors"*. This suggest that in undertaking an assessment students' have mimetic tendencies as they model their practices on the form which they perceive as the best way to obtain higher marks and not necessarily in how they might develop as product designers. This is an interesting observation as the work of Orsmond and Merry [3] indicates that students will also use their feedback in this way.
Student perceptions of the effectiveness of the varying feedback practices that have been adopted by the unit teaching team, for example, the weekly one-to-one and group scheduled tutorial sessions, appear to be less polarized, as 52% (n=28) indicate that they have received detailed comments on their project work (question 4), whereas slightly under half (46.2%, n=24) reported that the written responses made by their tutors on the *new* proforma (see Figure 2) clarified those things that they did not understand (question 7).
In response to the three questions that correspond to the themes of feed up, feedback and feed forward which are argued as being necessary for effective feedback, students responded similarly to each of them. When asked whether they felt the information provided in the proforma was useful for their progression (question 6) 65.4% (n=34) agreed that it was with comments that it *"found holes in my project that I hadn't considered"* and *"it let me know I was going in the right direction"*. Several students, however, commented upon the brevity of the feedback and typically described it as being *"too vague to be useful"* or *"scarce at best"*. In terms of the advice that reflects on 'how am I going?'

[6] just under two-thirds or 64% (n=32) of the respondents confirmed that the feedback proforma provided them with an understanding of how they performed against the marking criteria for Viva 1 (question 3) but their comments suggest that this was because they also discussed their performance with their individual supervisor. In considering the feedback on what to do next to improve their project work for the future (question 5), 66% (n=35) of the respondents once again responded positively though felt they *"could be more detailed and have different lecturers opinions"*.

6 DISCUSSION AND CONCLUSIONS

The intervention was clearly successful in increasing the percentage of students indicating that the marking criteria was clear in advance – 81% after the intervention compared to 46% in NSS 2014, though it is recognised that the dataset was limited to ninety-one percent of the students from an individual student cohort.

The notion that feedback requires something more than written, i.e. there is a need for dialogue is confirmed in the results of this study. Students received written comments on the proforma in Figure 1 but at the same time were able to have a dialogue with their project supervisor, while 64% indicated the proforma did explain their performance (question 3) this was appears to be more associated with the discussion with the supervisor.

However, other results were more mixed, comparing question 4 (52%) in the questionnaire with the similar one in the NSS2014 (48%), the results are not significantly different, this despite in both groups the students received written comments along with a discussion with their project supervisor, albeit the cohort in this study received written comment on the new, more structured, proforma.

In terms of understanding how to improve their work (questions 5 & 6) the responses were positive 66% and 65% respectively yet this was in marked contrast to question 7 which on face value would appear to indicate a contradiction. If you know how to improve is it not implicit you have had things clarified you did not understand? Question 7 in the questionnaire used in this study scoring 46% while the same question in MUSE scored 47% and in NSS 2014 - 48%. Thus, students' responses suggest that there is still an issue related to students' understanding of what do with the feedback they receive. How students' make sense of feedback and interpret it for feed-forward is an issue that arises in the literature.

The qualitative data received as part of the MUSE feedback, which was taken after the students' had had significant formative feedback on their project proposals but had not yet had a summative assessment, also largely indicates that final year students' perceptions of feedback generally concur with the notion identified by Nicol, that feedback is associated with written feedback on assignments.

Across all of the comments made against each of the questions posed, respondents frequently said that they would have preferred to have received a mark for their work and that there were inconsistencies with the commentary provided by their different tutors. Whilst it is clearly important to ensure parity of treatment, and to demonstrate reliability in providing a grade, Rowntree [7] suggests, that in complex situations, for which a final year design project assessment falls, there are clear benefits for students to receive variation in their feedback. This is because of the effect of *scaffolding*, a metaphor which was adopted by Wood, Brunner and Ross [8], whereby the feedback is broken down by different assessors providing a number of perspectives. Adopting a model for scaffolded instruction, requires the role of the tutor to be that of a facilitator of knowledge and therefore encourages students to take greater responsibility for their individual learning. This was recognized by at least one student who responded with, *"the comments, one-to-one meetings and my personal reflection helped me to understand"*.

A similar proforma was used for Viva 2, detailed design viva in March 2015 with the same cohort of students'. In order to attempt to improve the scores for questions 4 and 7 the cohort was asked how feedback could be improved prior to viva 2 by sharing the proforma to be used for Viva 2 and asking them to redesign it as a suggestion from the literature [4] is to ask students the kind of feedback they would like. This resulted in a general consensus from students' that the proforma was appropriate.

As indicated earlier this study is part of a planned longitudinal study that will look at tracking students' perceptions of feedback throughout their journey through university. Hence, the next data collection phase will use a questionnaire combined with the concepts from the literature to determine the perceptions of what feedback is, of first year students on design and engineering courses. These same students will subsequently be surveyed during their second and final year studies to determine if this perception changes. While it will be important for consistency to continue relating outcomes of

the further research to the NSS results, for the future the 'respondent pool' will be widened to include all final year students studying Design and Engineering at Wessex. Instead of restricting data collection to a single research instrument further studies will also adopt the use of interviews, either individually or through focus groups to further investigate the notion of mimicry as posited by Orsmond and Merry [3].

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