Students' perceptions of the value of electronic feedback – does disciplinary background really matter?

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Feedback on student work is a key mechanism for improving learning in Higher Education (HE) and can be provided in a variety of forms. Recently, many institutions have moved to the provision of electronic feedback, although evidence for the effectiveness of this is mixed. While many studies evaluating the students' perception of feedback are now available, there is little evidence of contrasting perceptions of its value according to different disciplines. This work aims to evaluate the relationship between students' expectations and perception of feedback, especially electronic, and the disciplinary area of study in HE. Students (n=1017) across different courses from a post-1992 university in the UK were surveyed and categorized into five disciplinary clusters: Science, Technology, Engineering and Mathematics; Business and Accounting; Art and Design; Media and Languages; and Psychology and Social Care. Perceived relevance as well as the most pertinent features and expectations of the quality of electronic feedback for students varies according to disciplinary cluster and thus closely aligns with a specific cluster's learning and teaching practices. The findings of this study may help institutions to reflect on the role of electronic feedback as part of their ongoing assessment practice and how teaching in the different disciplines may result in different understandings of the value of electronic feedback.

Keywords: assessment; electronic feedback; disciplines; higher education; feedback.

Practitioner Notes

What is already known about this topic:

- Massification is currently prevalent in the HE sector, with a larger student body leaving less space for personalised, individual feedback.
- Recently, many institutions in the HE sector have moved to the provision of electronic feedback.
- In the literature, there is little evidence of students' perceptions of the value of such feedback according to different disciplines.

What this paper adds:

- The perceived value of electronic feedback varies within the discipline of study.
- Students more used to online marking have higher expectations of e-feedback.
- The presence of a mark is perceived by students as the most important element of feedback.
- Students prefer emails as the main electronic feedback modality across all clusters.

Implications for practice and/or policy:

- Standard policies for electronic assessment and feedback do~~es~~ not fit all disciplines.
- Schools and departments within universities should apply a degree of adaptation to each discipline allowing a closer alignment with the learning and teaching process.

1. Introduction

Engaging with feedback is a central component of the students' learning experience in Higher Education (HE), not just as part of their university experience, but also as part of a lifelong learning skill. Dawson *et. al*. (2019) make reference to a shift in how feedback is being positioned in the educational literature in the beginning of this decade, from something given to the students to being a process in which students have an active role to play. Works from different authors (Carless, 2019; Carless & Boud, 2018; Winstone, Nash, Rowntree, & Parker, 2017) support this active role given to the student during the feedback process which necessarily involves the student making use of information to effect change, and thus improve their assessment literacy and being able to self-reflect about their learning (Carless & Boud, 2018). Being able to reflect on and work with feedback, even beyond graduation, generates in students the competency to monitor, evaluate and regulate their learning processes, to become more independent learners and to be able to cope with the uncertainties inherent in the knowledge economy (Ferguson, 2011).

Although evidence suggests the importance of feedback to shape longitudinal development of students' learning, the feedback received by students has been found in some areas to have little impact on their practice (Perera *et al*., 2008). Perhaps this is motivated by students' weak assessment literacy which has been widely reported in the literature (Carless & Boud, 2018; Price, Handley, Millar, & O'Donovan, 2010) or perhaps the lack of good assessment design (Boud & Molloy, 2013), which would encourage students from the outset to engage with the feedback process. To fully take advantage of the feedback for learning the teacher needs time to design their courses and to design how assessment and feedback will contribute to learning. This may take more time to plan, and time for teachers is not easy to find when the emphasis is on improving quality while reducing costs and time available for marking (Beaumont, O'Doherty, & Shannon, 2011; Debuse & Lawley, 2016; Farrell & Rushby, 2016).

HE institutions are increasingly adopting technologies for online submission, electronic marking and feedback, aiming to reduce administrative costs and to make the assessment process more time effective (Bausili, 2018) and more easily available to an increasing number of students. A report from the Heads of e-Learning group in the UK (Newland *et al*., 2013) illustrates the standardisation of the management of the electronic submission processes at an institutional scale with wider university policies around anonymous marking, moderation, online submissions or grading time, and at a smaller scale, the electronic feedback practice at course and departmental/school level. In line with this, Fulda (2006) reports that U.S. institutions are mandating for grades to be entered online. Virtual Learning Environments (VLEs) and electronic marking tools such as Turnitin, are providing an answer for

electronic marking and simultaneously shaping assessment and feedback. Fulda (2006) argues that not only does this offer cost and efficiency savings in transcribing grades and reducing the risk of error, but the same interface can be made available to students for quicker access to grades. Similar suggestions about the benefits of electronic assessment are made by a report from the Joint Information Systems Committee in the UK (Ferrell & Gray, 2016) which makes a case for more efficiency, transparency and efficacy when assessment is done online. Heinrich *et al*. (2009) agree that the real impact of technology is in administration efficiencies, but also that documents are easily accessible to all involved in the marking process at any time/place, ensuring transparency and accessibility. Another advantage of electronic marking and feedback is reported by Higgins *et al*. (2002), who point to difficulties identified by students in deciphering handwritten feedback as a further reason why students do not read or make use of tutors' comments. Electronic feedback makes feedback more accessible and readable according to this author (Higgins *et al*., 2002).

Although electronic assessment and feedback have been instrumental to wider institutional strategies to enhance students' assessment experience, assessment and feedback have been seen as the single biggest source of student dissatisfaction (Ferrell, 2014) when students are asked to rate their satisfaction about their course both in Australia (Student Experience Survey) and in the UK (the National Student Survey - NSS). The NSS is a survey conducted every year by an independent body on final year undergraduate students in the UK, which aims at evaluating the learning experience throughout their degree. It evaluates different areas, one of them being assessment and feedback. Within this area, students are asked if: (i) the criteria used in marking have been clear in advance; (ii) marking and assessment has been fair; (iii) feedback on [my] work has been timely; and (iv) I have received helpful comments on work. Amongst the NSS 9 areas and 27 questions, those around assessment and feedback have consistently reported lower satisfaction amongst students. Nicol (2010) reported that, in 2008, 39% of the students surveyed in English universities agreed that the feedback they received was not sufficiently detailed, and 44% reported feedback was not promptly delivered and did not explain things they misunderstood (Nicol, 2010). Other authors (Higgins, *et al.* 2001; Huxham, 2007) provide further reflections adding that, generally, students are dissatisfied with feedback features such as clarity and quality, although reports are also made that teachers are not satisfied with how students actioned the received feedback. Recent work from Boud and Molloy (2013), Carless (2019) and Winstone and Boud (2019) highlighted the value of formative feedback and the role of the student as an active participant in the feedback process. The authors agree that students need to develop more agency in how they perceived feedback but they also add that teachers have their own share of responsibility in designing better and more connected assessments which allows students to make use of the feedback received (Boud & Molloy, 2013).

Evidence of the success of this approach was reported by Zimbardi *et al*. (2017) in Australia, who created a new e-assessment tool that enables monitoring of the e-assessment process, creating a series

of iterations in the assessment process and reporting a series of data providing information about students' engagement with the feedback. Contrary to other studies, this research has found that students engaged significantly with the feedback when this was provided in context, and that the design of the e-assessment tool and its features might result in different engagement with feedback. They also report that the sooner students engage with feedback the higher the likelihood that the feedback received will have an impact on their learning (Zimbardi *et al*., 2017). Another study from the UK (Parkin *et al*, 2012) explored 23 undergraduate students' experiences with receiving different forms of feedback with varying degrees of technical intervention including, but not limited to, electronic feedback with grades withheld, online grade publication, criteria-based feedback, and more traditional feedback methods. Students valued the perceived permanence of access to their online feedback and the ability to monitor their own progression by monitoring their performance on each assignment (Parkin *et al.*, 2012). They recognised the ease of access to feedback made it more meaningful. They also added that typed feedback was more considered and thoughtful than handwritten feedback. These results are supported by Hepplestone *et al.* (2011), who showed technology has the potential to enhance students' engagement provided that it is well chosen and 'fit for purpose'.

Rowe and Wood (2009) discuss 'fit for purpose' in relation to students' learning preferences in terms of receiving and processing information, and how teaching in the discipline may impact on students understanding of what 'fit for purpose' is. Different disciplines may suggest different teaching methods and approaches; similarly, feedback may be given in different ways depending on the disciplines. Likewise, students may differently perceive the medium used to provide feedback in a variety of ways according to their discipline. Evidence in the literature on this specific aspect of feedback is scarce. Budge (2011) looked at electronic feedback by evaluating the perception of 69 students on a fashion and textiles course. This study showed that face-to-face feedback was preferred over other modes of feedback when given in a confidential environment with 55% of students reporting this preference as opposed to 13% of students' preference for electronic feedback. Conversely, Burrows and Shortis (2011) undertook a study evaluating perceptions of electronic feedback amongst psychology students and lecturers. They found that students thought electronic feedback procedures increased clarity of feedback compared to handwriting, it was more sustainable in the long run, saving resources, and resulted in faster and better detailed feedback. Furthermore, lecturers found that students could improve their digital competences after engaging with electronic feedback and this would result in improving their assessment literacy.

Although there is some research evaluating perceptions of electronic feedback, there is little evidence of contrasting perceptions of its value according to each discipline. We argue that in a time when institutions have moved to wider adoption of online assessment and feedback, there needs to be a general understanding that the feedback provided for say, twenty students on a fine arts course may

need to be provided differently than that to 200 students on a STEM course. We also argue that students' perception of quality of feedback and their satisfaction may vary from one discipline to another, and that institutional policies should adapt and respond to these. This research aims at responding to the question: How is electronic feedback perceived by students from different disciplines in comparison with more traditional mediums of feedback? This study also aims at providing more clarity regarding students' preferences about the type of feedback they want and insights of the value of electronic feedback according to their discipline of study.

2. Methodology

A questionnaire was delivered to undergraduate students in a post-1992 university in the UK. At this university, electronic assessment and feedback have been widely addressed and incorporated into a variety of programmes; assessment training has been offered to all academic staff as part of a transition to a new VLE (Price *et al*., 2017), so existing policies and practices around electronic assessment and feedback have been presented and widely discussed with academic staff. Electronic assessment and feedback are routinely performed via the VLE, using e-submissions, e-marking via *ad hoc* rubrics, and provision of feedback via electronic means. Electronic feedback is widely spread in all different disciplinary areas although with different levels of adoption. Current policies encompass anonymous marking, assessment calendars to avoid assessment bunching, feedback and grade release timeframes, moderation, and expectation of assessment criteria being made available at the start of the year.

2.1 Participants and clusters

Undergraduate students (n=1500) were invited across different courses, and grouped within disciplinary clusters: Art and Design (A&D), Media and Languages (M&L), Business and Accounting (B&A), Science, Technology, Engineering and Mathematics (STEM), and Psychology and Social Care (P&SC). Clusters were created based on perceptions of teaching practices, disciplinary similarities, and campus/school organisation. The latter is justified as some schools have their own individual idiosyncrasies around e-assessment and electronic marking when compared with other schools. The STEM and B&A clusters have typically large cohorts of students so they have in place mechanisms to make feedback more timely and effective by the use of, for example, rubrics and QuickMarks, an option in Turnitin that creates a library of typically used feedback that might be applicable, on multiple occasions, to multiple students. Art and Design (A&D) are heavily dependent on feedback delivered in face-to-face one-to-one meetings and art *crits* (i.e. a learning model whereby feedback on work is obtained after its presentation to a group). M&L and P&SC are heavily dependent on essay-type assignments usually submitted in Turnitin with the feedback either being delivered in Turnitin or outside Turnitin, through Microsoft Word track changes or handwritten.

Feedback is usually extensive. The latter three clusters have, in this institution, typically smaller cohorts of students.

2.2 Research tool

A questionnaire was used as a data collection tool and consisted of three sections. Section A contained 7 questions on demographics, including course and level of study, age, gender, ethnicity and entry qualifications. Section B contained 5 multiple choice questions, designed to gauge the students' expectations and preferred mode of feedback. Section C contained 12 statements to agree/disagree with (on a Likert scale of 4 choices), 1 multiple choice question and 1 open-ended question (for further comments).

Prior to collecting data, a pilot study was conducted on 10 randomly selected students, who were then excluded from the data collection to avoid bias. Students' feedback from the pilot study suggested no misinterpretation of questions. The final questionnaires were distributed as hard copies across the campuses in conjunction with an information sheet. Questionnaires were completed and collected immediately. Participation was anonymous and voluntary. Ethical approval for this study was provided by the University Ethics Committee.

2.3 Data analysis

SPSS Statistics software was used to carry out analysis on trends. The results were graphically interpreted using Excel. The Chi-square Test of Independence (Bourgonjon *et al*, 2010) was used to evaluate any statistical significance in the data.

3. Results and Discussion

3.1 Response rate and demographics

Of the 1500 distributed questionnaires, 1017 fully completed questionnaires were returned (i.e. response rate = 67.8%). The majority of respondents (68.8%) were studying in a STEM-related course (e.g. Biochemistry, Biology, Engineering, Pharmaceutical Sciences or Mathematics), whereas P&SC (2.0%) students were the least represented. The demographics of respondents related to each disciplinary cluster are summarised in Figure 1.

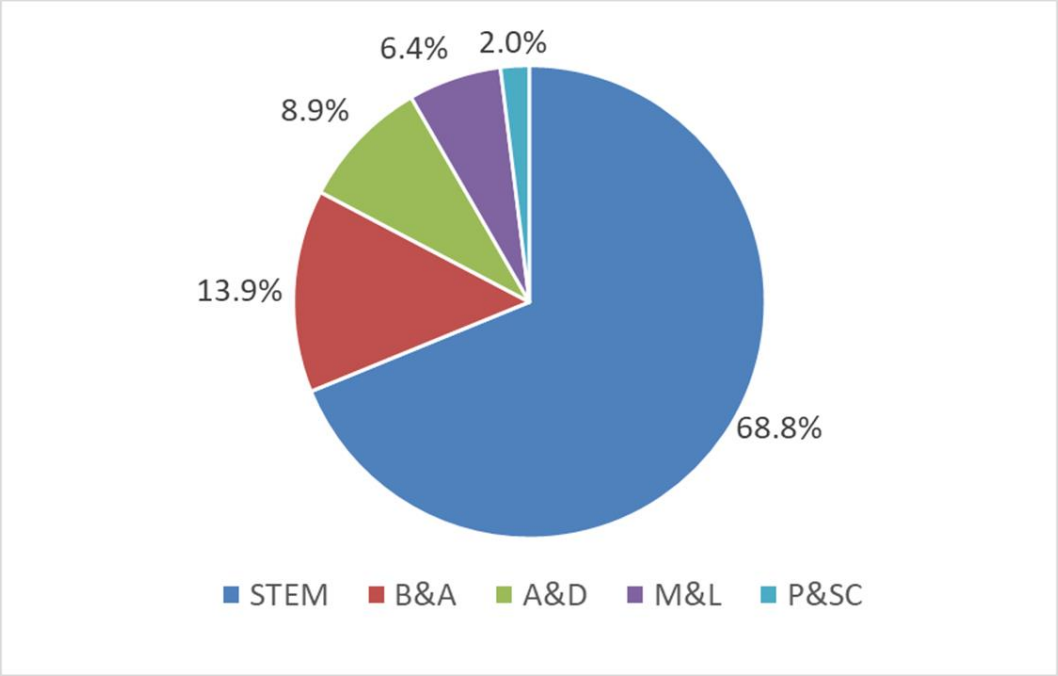


Figure 1: Demographics of the students taking part in the study showing percentage of participants per disciplinary cluster.

A full summary of respondents according to age and gender per disciplinary cluster is reported in Table 1.

	Age (%; n)			Gender (%; n)	
	18-24	25-30	31+	M	F
STEM	88.3% (n= 618)	7.9% (n= 55)	3.9% (n= 27)	45.4% (n= 318)	54.6% (n= 382)
B&A	85.1% (n= 120)	14.2% (n= 20)	0.7% (n= 1)	40.4% (n= 57)	59.6% (n= 84)
A&D	92.3% (n= 84)	5.5% (n= 5)	2.2% (n= 2)	30.8% (n= 28)	69.2% (n= 63)
M&L	80.0% (n= 52)	16.9% (n= 11)	3.1% (n= 2)	40.0% (n= 26)	60.0% (n= 39)
P&SC	65.0% (n= 13)	25.0% (n= 5)	10.0% (n= 2)	5.0% (n= 1)	95.0% (n= 19)

Table 1. Summary of the demographic details (age and gender) of respondents according to disciplinary cluster.

3.2 Preferred type of feedback

Upon asking participants to express their views on their preferences for different feedback methods, electronic feedback was the most frequently selected option with 34.2% (n= 348) of all participants. This was followed by face-to-face (29.9%; n= 304), hand-written (23.9%; n= 243) and group feedback (12.0%; n= 122).

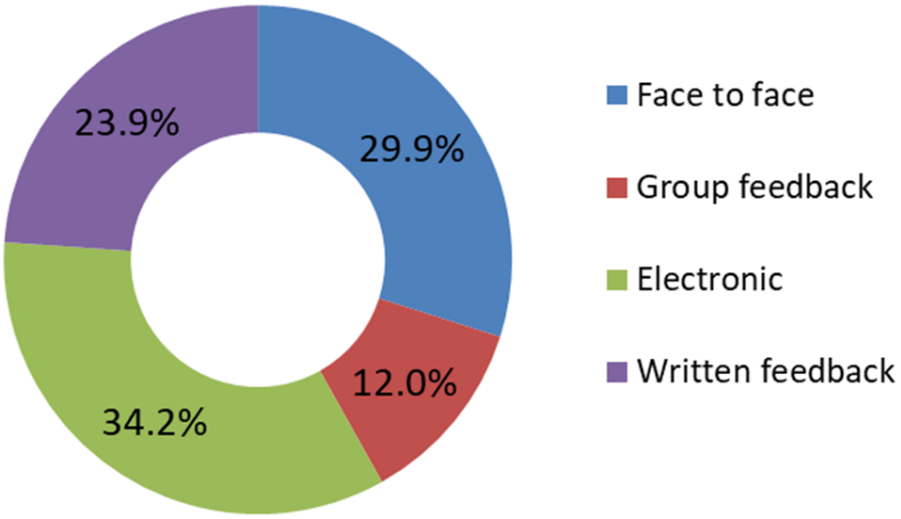


Figure 2: Students preferences of the type of feedback they want to receive in percentage terms.

A significant number of students selected face-to-face as their preferred mode of feedback (29.9%). Other studies (Budge, 2011) indicate that this type of feedback is preferred by learners as it provides them with opportunities for personal connections with their tutors. Nevertheless, the trend may undergo changes as the familiarity of newer generations of learners with digital technology is on the increase and this may perhaps extend to a preference in incorporating this technology into assessment and feedback. Furthermore, pressure on HE institutions in terms of massification of the student population leads to the need for greater administrative efficiency in the feedback process (Bausili, 2018; Newland, 2013) as well as the assurance of more accessible and transparent practices to students, teachers and external examiners (Heinrich, 2009).

Handwritten feedback was only selected by less than one quarter of the participants (23.9%); this still is a significant proportion, possibly to be traced back to the potential for the tutor's 'personal touch' and to the fact that students feel educators have taken time to read their work (Chang *et al*., 2012; Edeiken-Cooperman & Berenato, 2014; Hyland, 2013). Chang *et al.* (2012) reported that students in their study favoured handwritten feedback as this feedback is usually placed on papers in the areas that need to be improved. Conversely, the lower preference of handwritten feedback found in the present study could be attributed to difficulties in reading handwritten feedback and its illegibility (Scott *et al.*, 2011; Winstone *et al*., 2017). Group feedback was the least popular amongst students (12.0%); the lack of tailoring to individual students' work could be the rationale behind this lower popularity. Also, students may feel uncomfortable in discussing details of their own work in front of peers, resulting in a reduced confidence or opportunity for students to ask further questions. Still, in some areas (P&SC), group feedback was considered to be a common learning practice (Mosalanejad,

2013), suggesting that indeed different subject areas might require or prefer the delivery of feedback in different forms.

Upon evaluation of each disciplinary clusters' preferences, significant differences can be noted in preferred methods of feedback by students (Figure 3).

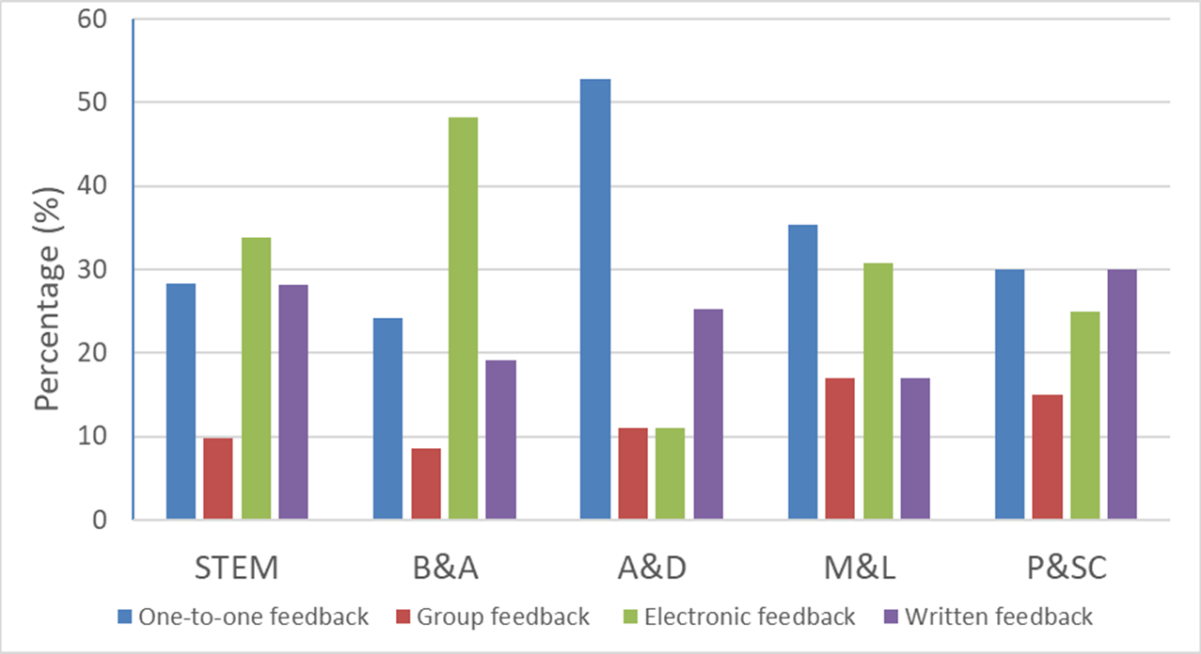


Figure 3: Percentages of preferred types of feedback according to disciplinary clusters.

Electronic feedback was found to be the most preferred method for STEM students (33.9%; n= 237); this preference was even more evident in B&A students (48.2%; n= 68). These results may be related to the more frequent use of electronic feedback in these two clusters and one may speculate respondents were tempted to prefer the method they are more familiar with in their own context. The results are more evenly distributed in M&L and P&SC. An interesting finding can be observed in the A&D cluster as students clearly prefer one-to-one feedback (52.7%; n= 48) and alternatively handwritten feedback (25.3%; n= 23). Only a few students prefer electronic feedback (11.0%; n= 10); we are inclined to relate this finding with the current learning and teaching practices within this cluster, which are heavily dependent on face-to-face tutoring meetings and art *crits*. It is therefore natural that students' assessment is aligned with such learning practices.

3.3 Valued feedback characteristics

We then tried to unpack what reasons students found for choosing their preferred type of feedback. In investigating this aspect, students were asked to tick as many options as were applicable (Figure 4).

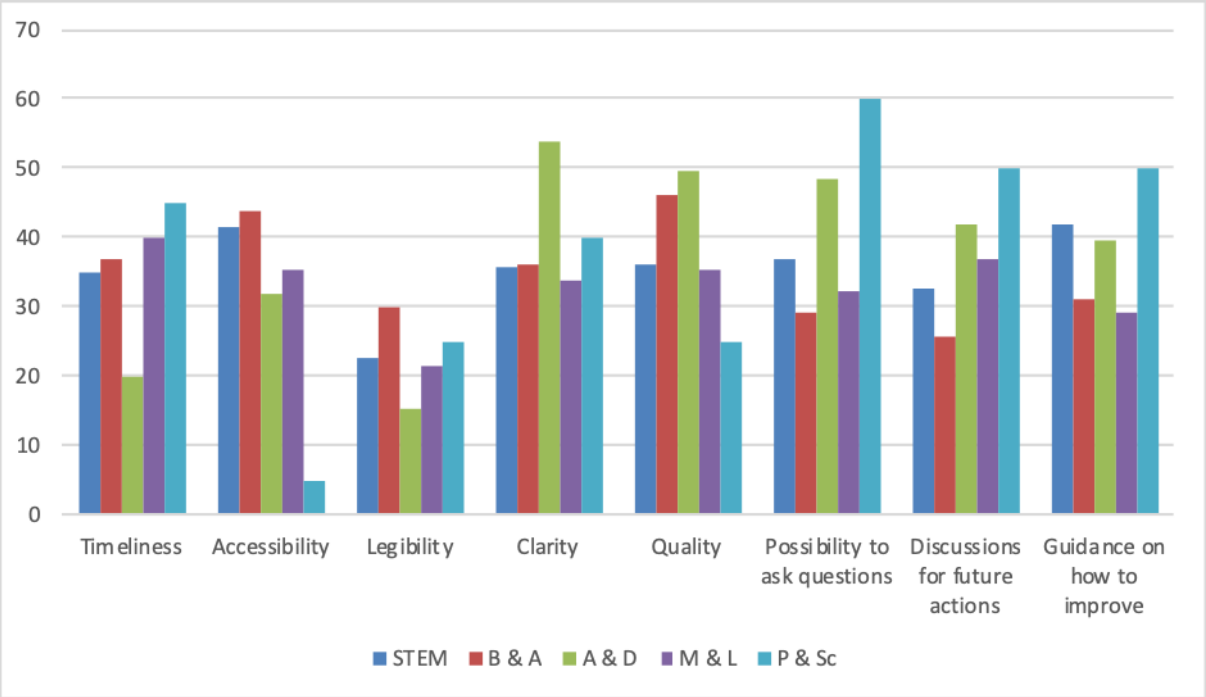


Figure 4: The reason behind selecting the most preferred type of feedback according to disciplinary cluster.

The STEM cluster, which voted electronic feedback as the most favoured method, identified 'Accessibility' (41.3%; n= 289) and 'Guidance on how to improve' (41.9%; n= 293) as the two most important reasons for selecting their preferred type of feedback. Students from the B&A cluster felt that 'Quality' (46.1%; n= 65) and 'Accessibility' (44.0%; n= 62) were the two main reasons for their preferred choice of feedback (electronic feedback was also the most preferred option in this cluster). Comparing these results and bearing in mind the similarities in preferred types of feedback (Figure 3) for these two clusters, it is interesting to see how students belonging to these clusters have different reasons for selecting their preferred type of feedback, although being able to access the feedback easily seems to be a constant.

In contrast, the P&SC cluster identified 'Possibility to ask questions' (60.0%; n= 12), 'Discussions for future actions' and 'Guidance on how to improve' (both at 50.0% n= 10) as the three main reasons for choosing their preferred type of feedback (in this cluster students chose written feedback and one-to-one feedback as their preferred method for feedback). This is supported by research from Winstone *et al*. (2017) and Burrows and Shortis (2011), who discuss that Psychology students are particularly fond

of detailed feedback that they can use in improving their future assessments and skills. They also discuss the importance of addressing with students what the feedback means and strategies by which the feedback could be implemented (Winstone *et al.*, 2017). Interestingly, 'Clarity' (53.9%; n= 49), 'Quality' (49.5%; n= 45) and the 'Possibility of asking questions' (48.4%; n= 44) are the three main reasons why students from the 'A&D' cluster seem to prefer face-to-face feedback. Perhaps, they feel they will have more opportunities to discuss the received feedback when in a face-to-face environment that resembles their normal learning environment.

In investigating the key aspects students expected to find in their feedback, participants were asked to tick as many options as applicable. Obtaining a 'final mark' was deemed to be the most expected feature presented in feedback in all courses with the exception of students from the P&SC cluster, where highlighting strengths and weakness were felt as the most significant feature (Figure 5). This finding provides an interesting topic for discussion as the majority of students are expecting their marks and an explanation for why they got such marks may possibly detract from a more in-depth analyses of areas to improve, strengths and weaknesses. Marks give a quantitative measurement, allowing a benchmark to be set where students can monitor progresses in their studies but do not really signpost to students how they can improve their work. Havnes *et al.* (2012) conducted a survey-based study, which revealed that grades were useful in providing quantitative information on how students performed in their assessments. However, the mark could present the drawback of leading students to be less willing to go through the provided feedback on the work and concentrating only on their mark to the detriment of their future attainment. Another study (Blair, Curtis, Goodwin, & Shields, 2013) confirms this suggestion as it found that some students were just concerned with their mark, not with the feedback. It is also believed that marks shift the students' focus away from longer detailed comments towards safer shorter feedback (Blair *et al*., 2013) and one may argue that that increases a separation between the assessment *of* learning and the assessment *for* learning.

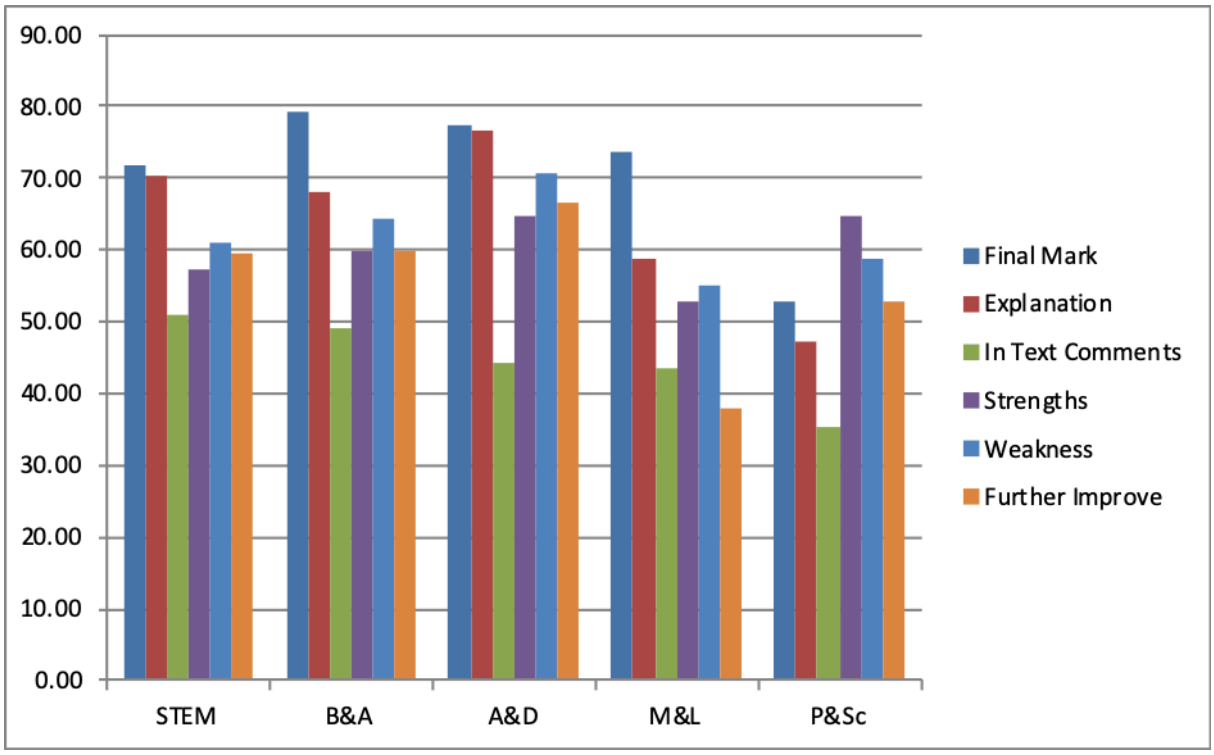


Figure 5: Expected features of feedback according to disciplinary cluster.

In line with this, Price *et al*. (2010) suggests that the content of feedback should not be limited to grading. Feedback should be continuously developed over time in order to showcase future potential; this is also generically referred to in the literature as 'feed-forward'. Crooks (1988) highlighted the need to identify strengths and weaknesses in the feedback provided to students to aid their performance and progression. Notably, in-text comments were the least expected feature of feedback, with the exception of the M&L cluster. A recent study conducted in Australia seems to provide evidence that students engage significantly with the feedback when it is provided in context (Zimbardi *et al.*, 2017). Perhaps this may be a result of how useful in-text comments may be in specific disciplines where composition of longer written pieces (e.g. essays) may be used such as in the M&L cluster.

3.4 Satisfaction with and usefulness of electronic feedback

In section C of the data collection tool, students were asked to score their agreement with given statements regarding electronic feedback. The Likert scale presented four options, but to simplify reporting, the two options in agreement and the two in disagreement were grouped together.

In the first part of section C, statements aimed at evaluating the quality of electronic feedback that students received were used. Around 63.6% of the participants in this study were not always satisfied

with the content of the electronic feedback (Figure 6) as average satisfaction across all clusters averaged only 36.4%.

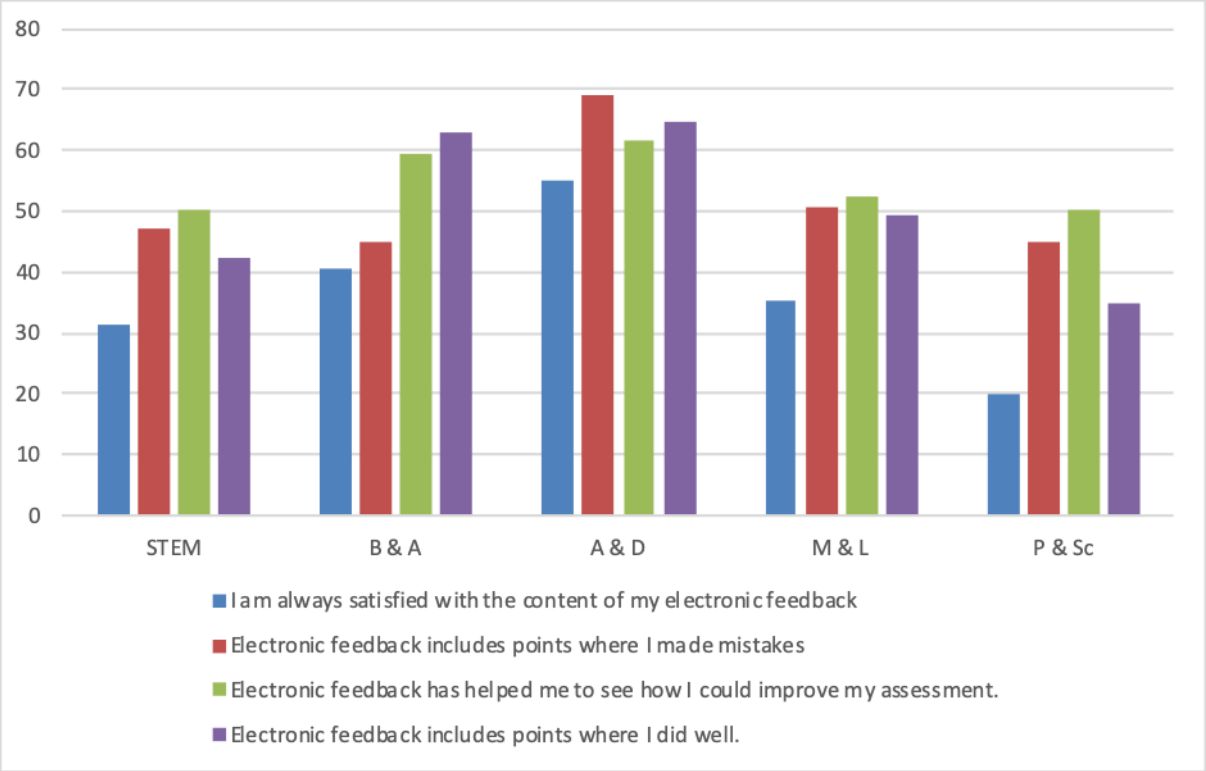
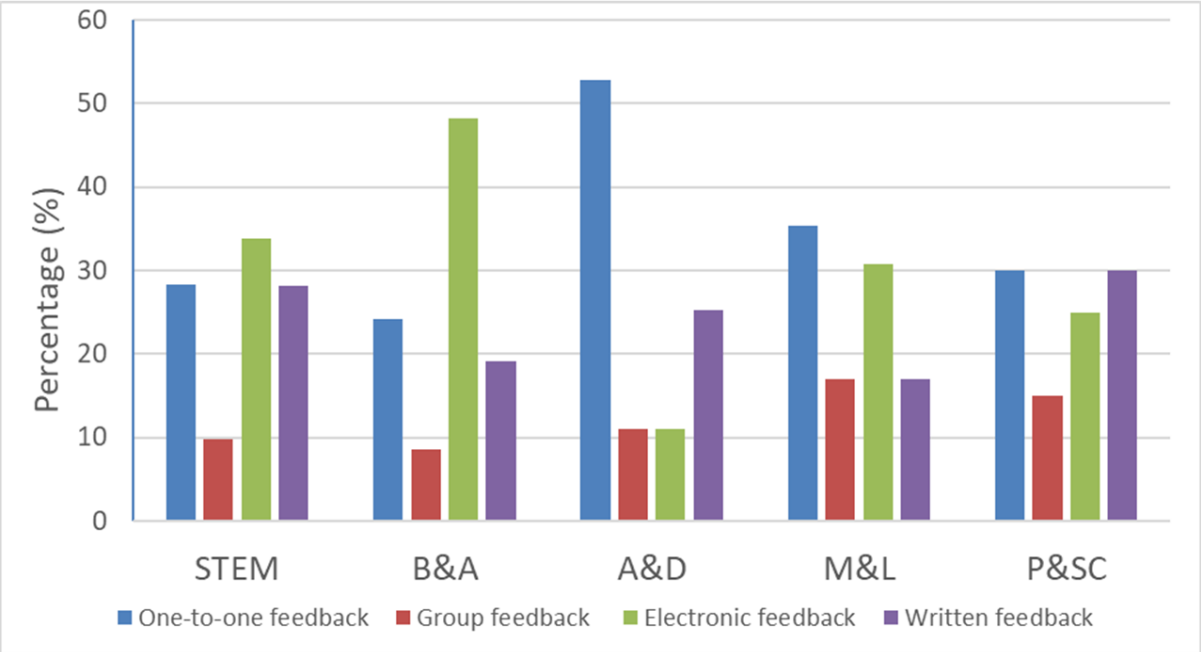


Figure 6: Percentage of students 'agreeing' or 'strongly agreeing' with statements regarding characteristics of electronic feedback according to disciplinary cluster.

In particular, the clusters more dependent on electronic feedback (STEM & B&A – see



3) were seen to be the ones less satisfied with the electronic feedback received. Surprisingly, results

also suggest that the clusters more in favour of electronic feedback are proportionally the most dissatisfied with its content and comments offering hints on how to improve work. This is in line with studies available in the literature, suggesting that students experience dissatisfaction with the usefulness of the feedback received (Mutch, 2003; Price *et al.*, 2010). Interestingly, the A&D cluster was the cluster where students were more satisfied with the quality of the electronic feedback received, despite this cluster preferring alternative methods (Figure 3).

In the second part of section C of the questionnaire, statements were aimed at evaluating the perceived impact of electronic feedback on student learning. Results are summarised in Figure 7**Error! Reference source not found.**.

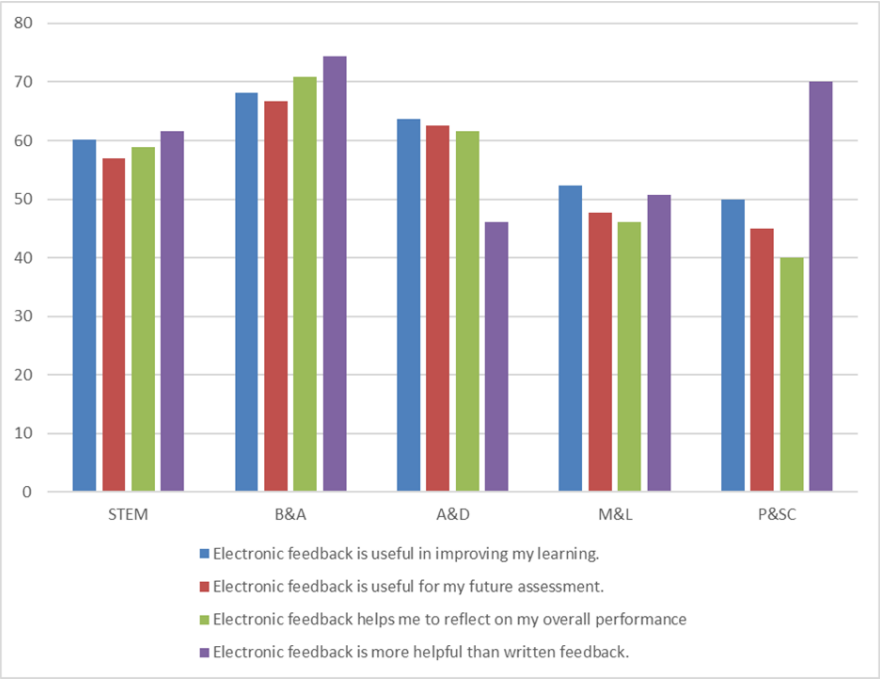


Figure 7: Percentage of students 'agreeing' or 'strongly agreeing' with statements regarding the impact of electronic feedback on student learning according to disciplinary cluster.

Over half of the respondents (58.9%) agreed that electronic feedback is useful in improving students' learning. Similarly, positive results were also observed for electronic feedback being useful to reflect on overall performance (55.5%) and for future assessments (55.8%). However, when looking at the breakdown of responses for each disciplinary cluster, results were not as consistent and positive as one might anticipate. Results from the P&SC cluster indicated that the majority of students do not feel electronic feedback is contributing to improving their learning experience and, more surprisingly, that it is not helping to impact on their overall performance as only 40% of respondents were in agreement with this statement. Even when looking at the overall results, there were still 41.1% of students

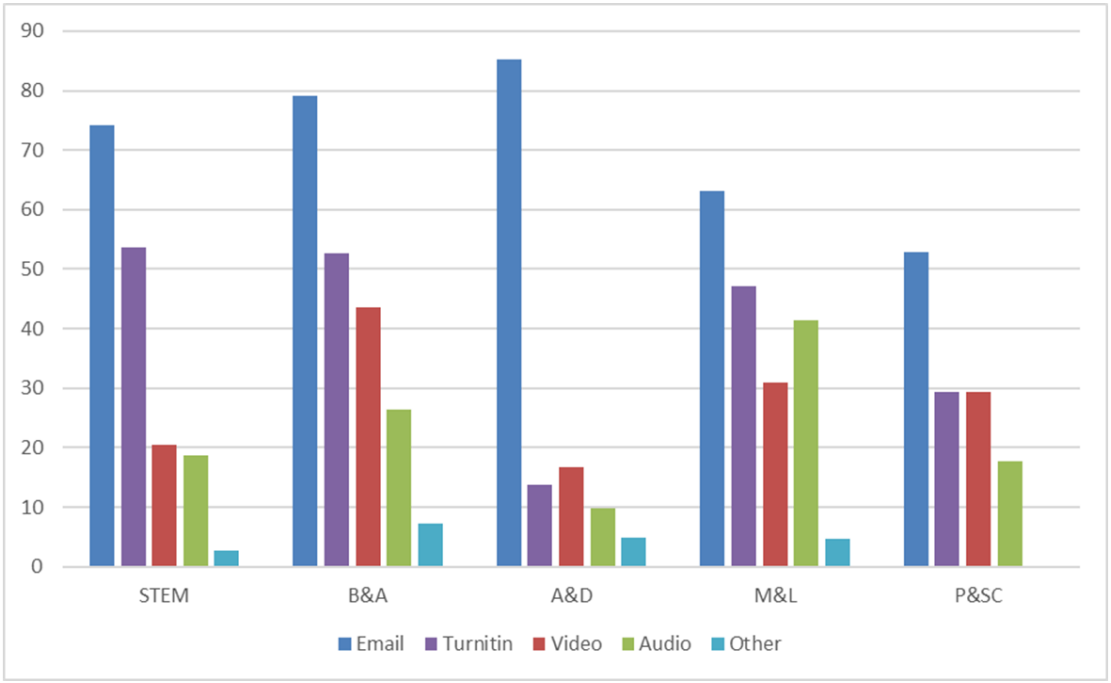
thinking that electronic feedback does not contribute to their learning. We argue that it is this portion of students that lecturers should focus on by reflecting on current practice and taking appropriate actions when providing feedback (including electronic), such as trying to tailor feedback to individual students as much as possible, connecting the feedback with the learning outcomes and the assessment criteria and signposting students to actions they need to take to improve in future assignments.

When respondents were asked whether electronic feedback is more helpful than handwritten feedback, the results were again interesting to analyse from a disciplinary perspective. Both B&A and P&SC clusters clearly indicated that they would prefer electronic feedback to handwritten feedback (74.5% and 70.0%, respectively). Conversely but as expected, the A&D cluster was less enthusiastic (46.2%) about receiving electronic feedback when compared with handwritten feedback. This may suggest that when face-to-face feedback is not available to these students, they balance their response in terms of the preferred method of feedback and in this case, they may believe that handwritten feedback allows a degree of flexibility that electronic feedback does not support. One may argue that if online feedback tools are better prepared to support other types of assessments students in the A&D cluster could potentially see the merits in this method of feedback.

3.5 Preferred type of electronic feedback

The present study also tried to identify which tool(s) participants would prefer in order to receive their electronic feedback. Participants were asked for their preferred method(s) of electronic feedback provision; options given were e-mail, Turnitin, video, audio and other. Turnitin is a commercial, Internet-based plagiarism detection service that incorporates a suite of other tools such as GradeMark (which is widely used for online grading and feedback). In the institution where the study took place Turnitin GradeMark was routinely used to provide electronic feedback to students.

Arranging results by disciplinary cluster, email was by far considered to be the most preferred mode for all clusters with an overall average response of 70.9%. The second most preferred option was ‘Turnitin GradeMark’ with an overall average response of 39.3% (



8). However, this was not the second most preferred option for the A&D cluster (only 13.7%) where 'video' was more preferred (16.7%); whereas in P&SC the options 'Turnitin GradeMark' and 'video' were both equally selected by 29.4% of respondents.

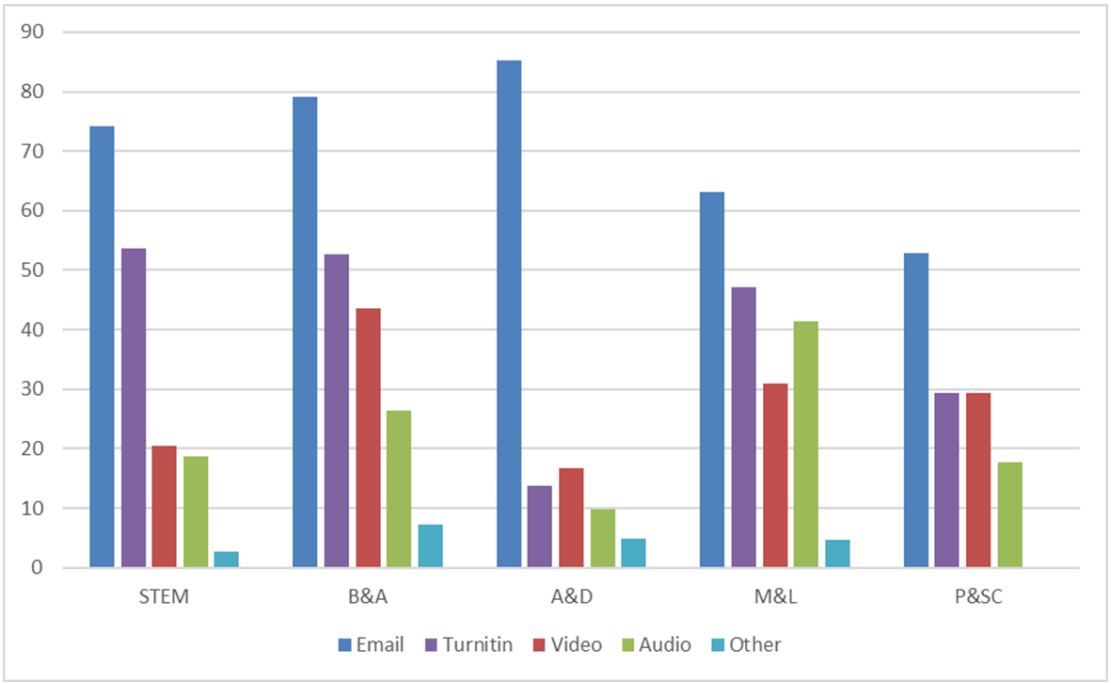


Figure 8: Percentage of students 'agreeing' or 'strongly agreeing' with statements regarding the impact of electronic feedback on student learning according to disciplinary cluster.

The most striking result is that students preferred receiving feedback by email across all clusters. This is particularly interesting as institutions are moving away from sending individual emails to students

and increasingly adopting technologies for online submission, e-marking and electronic feedback aiming to reduce administrative costs and to make the assessment process more time effective and transparent (Bausili, 2018). From a student perspective, emails may be perceived to provide more personalised feedback as it identifies the student's name. Perhaps, emails simply make communication simpler and more immediate, generating a certain degree of student agency in the feedback process as they are able to respond and question the received feedback upon receipt of the email.

Students from the A&D cluster showed a preference for 'video' over 'Turnitin GradeMark'. This may be explained in the light of the nature of assessments in this cluster, where often students are asked to design and create. Additionally, McCarthy (2015) assessed the differences between written, audio and video feedback in HE as part of an analysis of the different modes of summative assessment. The author concluded that video feedback was the most popular and powerful amongst both local and international students surveyed. This was because of the efficacy of visual images creating a dynamic impact to students, and enhancing cognitive growth as mentioned by Zhu (2012). Furthermore, feedback was perceived as a personal gesture where students felt that the feedback was highly specific and clear to them (Zhu, 2012). Although the A&D cluster had some preference for video feedback it is important to mention that the VLE in use at this institution at the time of the survey did not support video-feedback, so using video for providing feedback to students was not a widely supported practice in this cluster; one may argue that if it was, the percentage of students that preferred this method may have been bigger.

Another interesting finding is the level of importance given to 'audio' feedback by students in the M&L cluster. Research conducted by Olesova *et al.* (2011) showed that language learners became more involved in the course when they received audio feedback. Students reported that audio feedback is 'richer' in comparison to other forms of feedback. Researchers also believe that audio feedback conveys tone, correct pronunciation together with an emphasis and expression making it a deep means of communication compared to handwritten feedback (Middleton, Nortcliffe, & Owen, 2009) and this may perhaps be particularly valued by students within this cluster.

4. Conclusion

This study presents evidence of perceptions about the value of electronic feedback between disciplines. However, although employing a large sample of students, the study does not have a full

representation of all possible disciplines (eg. no representation of health or sport sciences) nor does it have a balanced representation in the different clusters – there is a clear underrepresentation of P&SC when compared with STEM students. This may be an area to explore further, in particular having in mind the evidence that shows that students from the P&SC cluster are particularly fond of written and in-text feedback.

Furthermore, the study introduces a new area to explore deeper concerning the different understandings of the value of electronic feedback in each discipline. It suggests that students' preferences for feedback are likely to be a complex interaction of their experience, the kind of assessment they are completing, and the way that assessment is staged as part of the learning experience, and so smaller scale research with comparison between two disciplines using similar assessment submissions may provide further data to reflect on.

Findings from this study provide evidence that the perceived value of electronic feedback varies within each disciplinary cluster. Students from the A&D cluster are more dependent on face-to-face feedback than students from other clusters because they are more dependent on face-to-face learning and teaching. Moreover, students from STEM and from B&A are more used to online marking and online delivery therefore they have a higher expectation concerning electronic feedback. Interestingly, the more dependent students are on electronic feedback the more they seem dissatisfied.

Another interesting finding is the perception of marks as the most important element of feedback. With the exception of the P&SC cluster that praised feedback that highlighted areas of strengths and weakness the remaining clusters highlighted marks as their most preferred feature of the feedback received. Notably, in-text comments were the least appreciated feature of feedback (in all clusters with the exception of M&L) which is interesting as evidence from other research seems to suggest that students value feedback when it is given in context (Winstone *et al*., 2017; Zimbardi *et al*., 2017). Perhaps this may relate to some lack of training or deficiency of the tool being used. In any case we argue that this is an area to explore further in future research about this topic.

The most surprising result is that students preferred emails as their main source of feedback across all clusters. This is particularly interesting as institutions are moving away from sending individual emails to students and increasingly adopting technologies for online submission, e-marking and electronic feedback. From a student perspective, emails may be perceived to provide a more personalised feedback or simply make communication more immediate and straightforward. This may be an area for reflection both for institutions and for assessment tool product designers. We recommend that students should have agency in the feedback process by being able to question, reflect and take action on the feedback received. This is to ensure that they value more their feedback experience and that it is more useful for their progression and attainment.

Finally, there seems to be evidence that features of feedback preference (in line text, video or sound) vary from discipline to discipline. This may suggest that standardised policies for assessment and feedback are not fit for all. A degree of adaptation to each discipline/school should be initiated allowing close alignment with the learning and teaching process within each disciplinary context. We recommend that wider university policies around e-assessment and e-feedback allow a degree of flexibility to accommodate disciplinary idiosyncrasies.

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