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Healthcare Students' Perceptions of Electronic Feedback through GradeMark®

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Executive Summary

This paper reports on the findings from a study undertaken to explore students' perceptions of the timeliness, accessibility, consistency, and quality of feedback and grading received electronically. The system used was GradeMark®, an electronic tool available through the plagiarism software provider, Turnitin®. 296 students from the Schools of Nursing and Midwifery, Medicine, and Dentistry at Cardiff University were included in the study. Data collection included an online survey and a focus group for each discipline. Findings revealed that the use of GradeMark® improved the timeliness and accessibility of feedback due to its immediate availability via any personal computer with internet access. The use of annotation was proven to be valuable; however consistency and quality of feedback were affected by markers' individual comments, issues which GradeMark® may not necessarily address. Findings provide insight into what quality feedback could look like from the students' perspective, which can help improve academic practice. Overall the study outcomes suggest there are benefits to using innovative technology such as GradeMark® to enhance learning. The paper provides valuable lessons that could assist others in adopting a pragmatic and planned approach to the introduction of electronic feedback using a system such as GradeMark®.

Keywords: GradeMark®, electronic feedback, quality feedback, student perceptions.

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Introduction

High quality feedback is viewed as a crucial component in student development. Joughin (2008) states it supports the learning process, acts to evaluate current achievement, and helps maintain professional standards. Effective feedback is constructive, timely, consistent, specific, non-judgmental, and non-personal (Agius & Wilkinson, in press; Ball, 2010; Ball, Franks, Jenkins, McGrath, & Leigh, 2009; Carless, 2006; Weaver, 2006). McKimm (2009) reports how effective feedback helps motivate and develop learners' knowledge, skills, and behaviour. It also promotes student growth by providing direction, increasing confidence and self-esteem, encouraging reflection, and clarifying understanding (Clynes & Raftery, 2008). When feedback is informative, supportive, constructive, specific, and of a positive nature, explaining where and why students have made errors and how to make improvements, significant increases in student learning are said to occur (Boud & Associates, 2010; Fotheringam, 2011).

Despite its value, student dissatisfaction with feedback is evident when considering current literature in the UK higher education sector and National Student Survey results (Higher Education Funding Council for England (HEFCU), (2012). Complicated jargon and vague and generalist comments can contribute to students dismissing and devaluing feedback as a learning opportunity (Nicol 2010; Sadler 2010; Weaver, 2006). The timeliness of feedback also has an impact on its effectiveness and influences whether students access feedback available to them (Knight & York, 2003). Ball et al. (2009) suggest the provision of rich and student-friendly feedback, accessible on-line, may address these well-publicised concerns. This is supported by the HEFCU (2010), which states technology has the potential to improve student experience of feedback by making it richer and more personal.

Against this backdrop the School of Nursing and Midwifery Studies, the School of Medicine and the School of Dentistry in Cardiff University undertook a research study which examined student perceptions of electronic feedback and marking of students' summative essay-type assignments through Turnitin's GradeMark® tool.

Cardiff University subscribes to Turnitin® and its suite of tools, which are fully integrated within the organisation's virtual learning environment. Stevens and Jamieson (2002) consider technology such as GradeMark® offers support in the management of student assignments and provides features conducive to high quality marking and feedback. As stated, the study explores student perceptions of electronic feedback and grading of summative work through GradeMark®, specifically, if the use of GradeMark® enhances the consistency and quality of feedback and marking, and if GradeMark® improves the accessibility and timeliness of feedback received by students.

As well as providing a plagiarism detection facility, Turnitin® provides a digital mark-up tool called GradeMark®, which offers a range of online options. GradeMark® provides markers with a flexible commentary system allowing detailed feedback to be placed at any point within a student's paper through electronic annotation. When students access their feedback on-line they are able to view assessors' annotations throughout the work in 'comment boxes' placed alongside text. A bank of personalised comments can be developed and used throughout a student's work saving the time it takes markers to repeat commonly-used feedback phrases. Students' written work can be electronically highlighted and markers can provide general comments. Grading of student work results from the use of a marking rubric embedded within the software, which can be customised according to academic requirements.

Rubrics provide criteria against which student work is assessed. Rubrics used in this study were developed in accordance with Quality Assurance Agency for Higher Education (2006) guidelines and according to each School's needs. It is suggested that electronic rubrics liberate markers from administrative tasks and enhance student learning through creating environments which facilitate quality feedback (Blayney & Freeman, 2004). The Turnitin® UK website at

http://submit.ac.uk/en_gb/features/grademark suggests students receive an enhanced service from opportunities to compare their grade, annotated and general comments, with the allocated weighting and criteria descriptors of a marking rubric.

Although some of the functions provided by GradeMark® are not unique, such as the provision of in-text annotations, according to Henderson (2008) they are easier to use and view that other popular packages such as Microsoft Word, which can disrupt the visual appearance of text (Beals, 2012). What is perhaps unique about GradeMark® is its facility to provide personalised electronic feedback directly to students together with grades generated from a marking rubric. Together, these are considered by Burrows and Shortis (2011) and Hatziapostolou and Paraskakis (2010) to be the systems strongest features.

Literature Review

Feedback to students is an important dimension of academic work. The Quality Assurance Agency for Higher Education (2006, p. 20) states "institutions must provide appropriate and timely feedback to students on assessed work that promotes learning and facilitates improvement." In addition, Archer (2010) reports feedback to health care students has the added dimension of ensuring professional standards and patient safety.

Key themes arising from existing research relate to the effectiveness of feedback from a student's perspective. Accuracy, clarity, and constructive comments assist students to progress (Archer, 2010). The timeliness, accessibility, consistency, and quality of feedback add to its utility (Sadler, 2010). Feedback not provided in time for students to act upon may be contrary to their needs, particularly if submission of further summative written work has occurred. Carless (2006) states for feedback to be of optimum use it should be delivered within a timeframe that allows students to use the information to positively influence their performance in future assessments. Consistency and quality in written feedback should be the cornerstone of good academic practice, yet students report dissatisfaction with these key attributes. Difficulties in understanding the language used by assessors, general, vague, and negative comments, and feedback lacking guidance and unrelated to assessment criteria are some of the issues raised (Weaver, 2006). Feedback should provide students with information on how to improve academic performance (Boud & Molloy, 2013). In reality, Li and Barnard (2011) consider that assessors may use feedback to justify the grade awarded rather than enable students to improve.

While considerable research informs on constituents of quality feedback, a focus on traditional paper-based systems is evident. Ball (2010) suggests annotation provides more meaningful feedback to students through augmentation of their written work with additional text. In the case of GradeMark® this is done electronically rather than directly onto paper copies. The impact of emerging technologies such as GradeMark® on the quality and experience of receiving feedback remains under researched. What research does exist has mostly focused on the functionality and assessor perceptions of software packages, such as the detailed review of online marking and feedback systems by Burrows and Shortis (2011). They identified GradeMark® as one of the most popular software packages on the market due to its ability to provide direct feedback and grading of work to students. It was these features which contributed to the endorsement of GradeMark® by the New Zealand 'Innovations in Assignment Marking' project team (Heinrich, Milne, & Moore, 2009). What perhaps is missing from research in this field is the students' perspectives on GradeMark®.

Bridge and Appleyard (2008) explored students' perception of online assignment submission and marking through a Virtual Learning Environment and reported the majority of students preferred this mechanism. Their findings provided a snapshot of students' enthusiasm for technology-assisted assessment practices. Chang, Watson, Bakerson, Williams, McGoron, & Spitzer, (2012)

also reported how 70% of students in their study preferred electronic feedback for its accessibility, timeliness, and legibility, and Upson-Saia and Scott (2013) illustrated how iAnnotate, a software system similar to GradeMark®, mitigated a number of issues undermining quality feedback, such as the time required to write detailed comments and illegibility of instructors comments. Hanna and Yearwood (2012) caution, however, against a blanket belief in students' preference for electronic feedback, stating that further research is urgently needed to explore this important aspect of pedagogical practice. Our study contributes to and complements the corpus of research available on GradeMark®, through illuminating students' perceptions of receiving electronic feedback and grading of work through GradeMark®.

The Research Study

The aim of our study was to explore student perceptions of the value of electronic feedback and marking on written work accessed through Turnitin®'s GradeMark® tool, particularly in relation to timeliness, accessibility, consistency, and quality.

Methodology

A review of the literature influenced the decision to use both qualitative and quantitative research approaches to allow for corroboration of research data and overcome what Denzin (1989, p. 307) calls "the intrinsic bias that comes from single-method studies". The study involved an online survey and focus group discussions.

Sample

The choice of assessment determined the sample population to be included in the study. GradeMark® is not compatible with all assessment types, thus it was important to determine those that were suitable to be included within the project. Essay-type assessments were chosen, as these constitute an appropriate pedagogical design to use in combination with on-line marking and feedback (Freeman & Mckenzie, 2002). All 296 students asked to participate in the study had received feedback through GradeMark®. Students approached to participate included:

- 133 second year Bachelor of Nursing (Hons) students comprising the total cohort;
- 100 third year Bachelor of Medicine, Bachelor of Surgery, medical students comprising one third of the total cohort;
- 63 third year Bachelor of Dental Surgery (Hons) students comprising the total cohort.

Ethics Issues

Ethics approval was granted by each of the Schools' Research Ethics Committees and permission gained from Deans of Schools. Participants were given free choice to engage in focus groups and the online survey. All students were seen beforehand by an academic member of staff and informed of the study aims. Students were reassured their contribution would not be discussed with members of academic staff and their personal academic progress would not be influenced by participation. All data was kept confidential and anonymised, accessed only by members of the research team.

Pilot Study

Consideration was given to the quality of the data collection tools in relation to the comprehensibility of questions posed to interviewees and if these captured the type of information they were intended to. A pilot study involving seven students, who shared the same characteristics as those in the study but who were outside of the sample population, was used to test the flow, salience, and clarity of the survey instrument and focus group schedule. This helped ensure 'content valid-

ity' through identifying problems such as ambiguity, poor wording, inappropriate response options, and unclear instructions (Burns, Duffet, Kho, Meade, Adhikari, Sinuff, & Cook, 2008). The standard aimed for was for each student to relay his or her understanding of survey and schedule questions to be that intended by the research team. Pilot testing also enabled assessment of whether the questions facilitated an adequate range of responses and that replies could be interpreted in terms of the information required as well as identifying redundant, irrelevant, or poorly worded questions. Pilot testing resulted in minor amendments to question construction in both survey and focus group schedules.

Data Collection: Online Survey

A survey was deemed the most appropriate method to reach the diverse student population as it is recognised to be quick, efficient, and effective (Sue & Ritter 2012). Surveys and focus groups were conducted sequentially over a six month period so that each method helped inform the other.

Closed and open questions formed the survey instrument (see Table 1). Closed questions were associated with a Likert-type scale offering the options of 'strongly agree, agree, not sure, disagree, and strongly disagree'. There are both benefits and disadvantages to allowing the 'not sure' option; if it is removed, this forces a response one way or another. There may be genuine occasions where respondents are not able to choose, and if forced to pick an option other than 'not sure', results can be skewed. Leaving this in allows respondents to make a choice based on legitimate reasons. This can sometimes result in higher 'not sure' responses, an issue that may have particularly affected the results of questions 'I found the rubric helped to improve my work' and 'I prefer the marking criteria used previously'. Both showed notably high levels of 'not sure' responses.

Table 1: Survey schedule

1. Accessing annotated feedback through GradeMark® was easy
2. I prefer paper-based feedback to electronic annotated feedback through GradeMark®
3. Annotated feedback has helped me clarify things I did not understand
4. I have NOT received detailed annotated feedback on my work
5. The annotated feedback I have received has been constructive and helped me see how I can improve
7. Overall, I am satisfied with the quality of annotated feedback provided
8. The feedback provided previously was more useful to me than annotated feedback through GradeMark®
9. Annotated feedback through GradeMark® should be used more widely across the University
10. The assessment and marking of my work with GradeMark® has been fair
11. The marking rubric used to grade my work is NOT easy to understand
12. The rubric clearly defined the requirements needed within each criteria and percentage banding
13. I could clearly match comments on my work (annotations and general comments) to the banding criteria definitions in the rubric
14. I found the rubric helped to improve my work
15. I prefer the marking criteria used previously
16. The GradeMark® tool is effective for the retrieval of assignment feedback
Open text questions Q1 Looking back at the experience, are there any positive aspects you would like to highlight? Q2 Looking back at the experience, are there any areas for improvement you would like to highlight?

The construction of survey questions took consideration of key factors said to influence survey success, with each question focusing on a single construct, containing fewer than twenty words, being comprehensible, non-judgmental, and unbiased with care taken to avoid the use of absolute terms such as always, none, or never (Burns et al., 2008). The format of the survey was designed to provide clear and specific directions, ensure appropriate grouping and sequencing of questions, and ensure a vertical rather than horizontal flow of items

All students who received feedback through GradeMark® were invited to complete an on-line survey and the following response rates were achieved:

- School of Dentistry (SD) – 47 of 63 (75%)
- School of Medicine (SM) – 57 of 100 (57%)
- School of Nursing and Midwifery Studies (SNMS) – 73 of 133 (55%)

An important consideration of any quantitative survey is the achievement of response rates at a level where generalisations can be made. A combined 'across school' score of 62% was achieved which meant that of the 296 students eligible to participate in the study 177 completed the online survey. Although a response rate above 80% is usually vital to ensure the generality of survey results, Wyatt (2000) states this is not always necessary. Where survey communities are homogeneous to a key variable, as in all students using GradeMark®, a lower response rate is considered less of a problem. When considering reported response rates to online surveys average around 30% (Nulty, 2008), the 62% rate achieved in our study was impressive and was influenced by the following strategies,

- Surveys were run soon after release of results in each of the three Schools;
- Announcements placed within virtual learning environments informed about the survey and how to complete it, including a web link to ensure quick and easy access;
- Where survey dates coincided with students attending University, timetabling opportunities were made available to enable completion of the survey;
- Each survey was kept 'live' for a two-week period to capture as many responses as possible;
- Using a 'text' reminder system of survey commencement dates for those students on clinical placements;
- Requesting module leaders and programme managers opportunistically remind students about the survey;
- Asking student representatives from each cohort to disseminate information on the survey prior to and during their conduction;
- Ensuring GradeMark® was a timetabled item at student/staff panels and using these to prompt reminders of when surveys were conducted; and
- Using electronic reminders throughout each survey's 'live period'.

Data Collection: Focus Groups

Students were informed through the online survey that random selection and invitation to participate in a focus group discussion would occur. A simple random selection table was used to select 20 students from each school and these students were invited to participate in one discipline-specific focus group discussion. In total, 27 students participated: 18 dentistry, six nursing and three medical students. Those selected were sent an information sheet, contact details to discuss queries, and consent forms.

The use of focus groups is not without challenges. Miles and Huberman (1994) remind how data may be affected by participants not wishing to share their perceptions or who 'gloss over' experiences that the researcher is unaware of. It is also difficult to assess how the effects of social desirability and conformity influence expression of views and how the researcher may influence and

introduce bias into discussions. Being conscious of the influence on data collection from a moderator's perceived power and position in focus group discussions, project sponsors acted in the moderator role during the conduction of the focus groups with students, but not with students from their own faculty. This was done to reduce bias and subjectivity in data collection and to encourage student discussion. Therefore facilitation of each group was planned as follows:

- The focus group composed of nursing students was facilitated by the project lead sponsor from the School of Medicine
- The focus group composed of medical students was facilitated by the project lead sponsor from the School of Dentistry
- The focus group composed of dentistry students was facilitated by the project lead sponsor and principle investigator from the School of Nursing and Midwifery

A discussion guide consisting of semi-structured questions and probes was used during the conduction of the focus groups to provide a framework with which each moderator could ask questions and probe where required (Table 2). This helped ensure consistency and comprehensiveness of data collected as discussed by Burns et al. (2008). The guide was designed to proceed logically from one topic to another and to flow from the general to the specific where questions were constructed to be open-ended, simple, unbiased and non-threatening.

Table 2: Focus group schedule

1. What have been your experiences of using GradeMark® in relation to? - Its technical aspects e.g. usability, reliability - Its use as a grading tool - Its use as a feedback tool
2. What have been your experiences of annotation (written comments on the text of your work) used as part of the feedback through GradeMark®?
3. The marking criteria was turned into a 'rubric' for use with GradeMark®, have you had an opportunity to see this?
4. What are your views on the rubric used to grade your work?
5. What were your views about the feedback comments you received through GradeMark®?
6. What does feedback mean to you and what value do you place upon it?
7. Has GradeMark® influenced your views about feedback?
8. How do you think feedback on summative assessment could be improved?

Data Analysis

All collected data was included for analysis. In relation to the survey data, the Likert-style item responses were converted to percentage scores (Table 3) and the survey open text question responses were subjected to a content analysis (Tables 4 and 5).

Table 3: Online survey results

	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree	Left Blank
1. Accessing annotated feedback through GradeMark® was easy	57 (32%)	85 (48%)	11 (6%)	20 (11%)	4 (2%)	0
2. I prefer paper-based feedback to GradeMark® electronic annotated feedback	11 (6%)	17 (10%)	51 (29%)	75 (43%)	22 (13%)	1
3. Annotated feedback has helped me clarify things I did not understand	29 (16%)	82 (46%)	30 (17%)	26 (15%)	10 (5%)	0
4. I have NOT received detailed annotated feedback on my work	18 (10%)	33 (19%)	24 (13%	60 (34%)	42 (24%)	0
5. Annotated feedback I have received has been constructive and helped me see how I can improve	19 (11%)	81 (46%)	31 (18%)	31 (18%)	14 (8%)	1
6. Overall, I am satisfied with the quality of annotated feedback provided	21 (12%)	74 (42%)	35 (20%)	31 (17%)	16 (9%)	0
7. Feedback provided previously was more useful than annotated feedback through GradeMark®	11 (6%)	27 (15%)	51 (29%)	62 (35%)	25 (14%)	1
8. Annotated feedback through GradeMark® should be used more widely across the University	44 (25%)	86 (49%)	39 (22%)	5 (3%)	3 (2%)	0
9. The assessment and marking of my work with GradeMark® has been fair	19 (11%)	93 (53%)	38 (31%)	18 (10%)	7 (4%)	2
10. The marking rubric used to grade my work is NOT easy to understand	5 (3%)	24 (14%)	42 (24%)	92 (53%)	12 (7%)	2
11. The rubric clearly defined the requirements needed within each criteria and percentage banding	12 (7%)	91 (52%)	42 (24%)	27 (16%)	2 (1%)	3
12. I could clearly match comments on my work to the banding criteria definitions in the rubric	8 (4%)	69 (39%)	54 (31%)	36 (20%)	9 (5%)	1
13. I found the rubric helped to improve my work	7 (4%	56 (32%)	79 (45%)	27 (15%)	8 (4%)	0
14. I prefer the marking criteria used previously	4 (2%)	19 (11%)	83 (47%)	54 (31%)	16 (9%)	1
15. The GradeMark® tool is effective for the retrieval of assignment feedback	48 (28%)	101 (58%)	16 (9%)	7 (4%)	2 (1%)	3

Table 4: Survey free-text themes on positives aspects about GradeMark®

Theme	Question: Looking back at the experience, are there any particularly positive aspects you would like to highlight?	
a) Improved accessibility	Dental student response:	'*it's easy to access results and feedback'*
	Nursing student response:	'*it is much better to access your grades through GradeMark'*
	Medical student response:	'*much easier to retrieve work than travelling to collect the copy'*
b) Improved timeliness	Dental student response:	'*quick and easy'*
	Nursing student response:	'*getting your mark on the day makes a huge difference'*
	Medical student response:	'*much quicker way to receive feedback as we don't have to collect the work'*
c) Improved understanding from specific comments	Dental student response:	'*feedback exactly where it should be so it is completely clear'*
	Nursing student response:	*'it was really useful to have the comments posted next to your work so you could understand which area they were talking about'*
	Medical student response:	'*after being marked by GradeMark, I know which areas in particular I could have changed and feel confident I could implement them in future assignments'*
d) Improved legibility	Dental student response:	'*easy to read*
	Nursing student response:	'*feedback was clear'*
	Medical student response:	'*digital feedback prevents difficulty in reading'*

Table 5: Survey free-text themes on ways to further improve GradeMark®

Theme	Question: Looking back at the experience, are there any areas for improvement you would like to highlight?	
a) Preparation in the use of GradeMark®	Dental student response:	'*that we have clear instructions on how to use GradeMark'*
	Nursing student response:	'*there was slight confusion as to how to get assignment details up initially'*
	Medical student response:	'*difficult to find instructions on how to use the tool'*
b) Ways to improve	Dental student response:	'*more detailed comments on things to improve'*
	Nursing student response:	'*it would have been nice to have explained what could have improved the essay further'*
	Medical student response:	'*comment on how to get extra marks'*
c) More detail	Dental student response:	'*more feedback on specific areas from the markers'*
	Nursing student response:	'*perhaps slightly more detail*
	Medical student response:	'*more detailed feedback'*

Focus group recordings were transcribed by one of the researchers. This data was analysed using an adapted framework approach described by Pope, Zieblend, and Mays (2000). This involved familiarisation with the data from each student focus group discussion through repeated listening to recorded tapes and repeated reading of subsequent transcriptions. The aim was to enable any unique patterns from each student focus group to emerge. Cross group analysis followed where medical, dental, and nursing student group data were merged according to questions posed; this provided an opportunity to examine similarities, differences, and minority opinions between groups. Comparisons between preliminary focus group and survey data findings also occurred, looking for emerging concordant or conflicting patterns from both data sources in order to strengthen or question findings. It was from this process that themes began to emerge from the data. The audio recordings were transcribed into a format that allowed the writing of memos alongside the recorded text in the form of ideas, concepts, and categories, and this process enabled the development of a thematic framework, against which all focus group data was examined. Data was indexed by annotating transcripts with numerical codes, supported with representative quotations which further enabled comparisons to be made within and between the medical, dental, and nursing student discussions. Charting then occurred, which involved removing some data from its original source and coding and merging it into units of meaning with other similar units. This reduced the data into 'sets' of meaning and helped illustrate inconsistencies and minority opinions. From the sets identified, twenty five sub-themes were mapped which were collapsed into the following four major themes:

- Accessibility of feedback
- Timeliness of feedback
- Quality and consistency of feedback
- Suggestions for improvement

Findings

Findings from the online survey, including free text comments, and findings from the focus group discussions are presented according to the four major themes identified from the focus group analysis.

Accessibility of Feedback through GradeMark®

The majority of students appeared to find the GradeMark® software easily accessible, especially when clear and sufficient information in its use had been provided. Ease of use was a common theme in over a third, or 23 of the 63 dental, nursing, and medical students free text survey responses. Ease of access was also reported by the majority of survey respondents, where 32% strongly agreed and 48% agreed (80% in total) that accessing annotated feedback through GradeMark® was easy; and 28% strongly agreed and 58% agreed (86% in total) that GradeMark® was an effective tool for the retrieval of assignment feedback. Only 1% of respondents strongly disagreed that retrieval of feedback was effective through GradeMark®. Students' views are represented in the following extracts from the focus group discussions and free text comments:

> I didn't have any problems with it really. There was stuff up on Learning Central…
> (Focus group, par 2, Medical student)

> There was an online guide to submitting the project, but no, not how to use it
> (Focus group, par 9, Dental student)

> It was a bit daunting initially because err it was a completely different system. I was thinking, 'oh, this is going to ... I'm going to fail or ... if it was not submitted properly. But it was so easy to use'
> (Focus group, par 3, Medical student)

> It is much better to access your grades through GradeMark
> (Nursing student free text response)

> Much easier to retrieve work than travelling to collect the copy
> (Medical student free text response)

> And because it's online you can access it wherever you are as well…it's easily found
> (Focus group, par 1, Dental student)

> Yeah. And obviously if you're away… , like if you're writing an essay up there, it would be good to refer back to, so if someone says you need to be clearer on x and y, and you could read that where you were and do it there
> (Focus group, par 1, Medical student)

While most students found GradeMark® easily accessible, 11% did not, and focus group findings revealed that some students reported insufficient guidance on the use of the system, difficulty accessing the GradeMark® software, slow or non-system response, and perceptions that the software re-formatted work. Of 84 dental, nursing and medical student free text open survey responses 15 identified a desire for more instructions and technical improvements to GradeMark®.

> Maybe just, make it easier to follow, like just, yeah just tell us how to use it
> (Focus group, par 1, Dental student)

> There was slight confusion as to how to get assignment details
> (Nursing student free text response)

> Difficult to find instructions on how to use the tool
> (Medical student free text response)

> I spent about half an hour trying to get onto it because I hadn't realised you had to use Firefox
> (Focus group, par 5, Dental student)

> It sometimes changes the format of your work
> (Focus group, par 2, Medical student)

> Yeah, and sometimes the images get skewed and jump pages and things
> (Focus group, par 4, Nursing student)

Timeliness of Receiving Feedback through GradeMark®

Another prevailing theme from the focus group research related to improved timeliness, which was also a common theme for seven of the 21 nursing student respondents to the free text open survey. Students appeared to perceive the system as quick, fair, and convenient and appreciated the facility to access their feedback and grading of their work from locations other than that of the University.

> Getting your mark on the day makes a huge difference
> (Nursing student free text response)

> Much quicker way to receive feedback as we don't have to collect the work
> (Medical student free text response)

> We got the marks a lot quicker than we expected
> (Focus group, par 2, Nursing student)

> And I think er, we got the marks a lot quicker than we expected we would
> (Focus group, par 2, Dental student)

> Yeah, that's what I found really much better, you got to receive your mark and see the feedback straight away as opposed to receiving the mark on Blackboard and then waiting to get your feedback
> (Focus group, par 3, Medical student)

> I thought it was good that everybody gets their feedback on the same day
> (Focus group, par 1, Nursing student)

Quality and Consistency of Feedback Received through GradeMark®

When asked on their view on the feedback comments received through GradeMark® 11% and 46% of respondents respectively strongly agreed and agreed that the feedback received was constructive and helped them see how they could improve. Similarly, 12% strongly agreed and 42% agreed that they were satisfied with the quality of the annotated feedback received. Focus group findings revealed that feedback through GradeMark® was more highly valued by students when it provided direction on how to improve existing and future work and prevented the repeating of mistakes. Students in this study perceived quality feedback as that which was constructive and easily understood, of use to future learning, and of sufficient quantity to be meaningful.

> But with this it was better because, you know, you were able to say, 'well, this sentence worked. This perhaps ... this sentence could be better... and because like it was just very sort of critical on certain specific points, which obviously ... you know, it's sort of constructive feedback, really
> (Focus group, par 3, Medical student)

The survey free text open questions revealed that of 63 responses, 19 students reported the specific feedback they received was highly valued. This facility appeared to be one of the most popular aspects of the GradeMark® software.

> The little highlighted bits in the text where you could drop down and it gave you a comment if they didn't think it was what, like any good, you know the little text box. They were really good as well
> (Focus group, par 4, Dental student)

> The speech bubble's I think was the best thing about the whole thing
> (Focus group, par 5, Dental student)

> I thought it was a lot better, because normally, obviously for you guys to actually write around the text, you can't do it without ruining the work, so normally you just get the sort of simple sort of paragraph at the end
> (Focus group, par 1, Medical student)

> Feedback exactly where it should be so it is completely clear
> (Dental student free text response)

> It was really useful to have the comments posted next to your work so you could understand which area they were talking about
> (Nursing student free text response)

> After being marked by GradeMark, I know which areas in particular I could have changed and feel confident I could implement them in future assignments
> (Medical student free text response)

Conversely, 17% of students were not satisfied with the quality of the annotated feedback received, 15% thought that previous feedback was more useful that that received through GradeMark® and 10% would have preferred paper-based rather than electronic feedback.

The survey revealed that 34% of students disagreed and 24% strongly disagreed that they had not received detailed annotated feedback on their work, and 16% of students strongly agreed and 46% agreed that annotated feedback helped clarify things not understood. However, findings from the focus groups and open survey free text comments illustrated some students' desire for more detailed feedback. Overall 29% of survey respondents strongly agreed or agreed that they had not received detailed annotated feedback and over 25% of students who responded to the survey free text open responses, namely, 23 out of 84, reported a desire for more detailed feedback.

> Basically, 'good's' and like 'bad's' or 'wrong's' - it just doesn't mean anything
> (Focus group, par 3, Dental student)

> It needs to have 'next time you need to set it out into headings or', you know. If it's kind of constructive, then we can go away, learn from it and get a better mark
> (Focus group, par 1, Medical student)

> More detailed comments on things to improve
> (Dental student free text response)

> It would have been nice to have explained what could have improved the essay further
> (Nursing student free text response)

When asked about their views on feedback and what value they placed on it, the focus group discussions revealed feedback was perceived as important, helpful for future work, prevented the repetition of mistakes, informed on where to focus attention, and acted as a resource.

> It's just helpful to know where you need to ... focus on what you've done wrong
> (Focus group, par 1, Medical student)

> Well it guides us on the next assignment really
> (Focus group, par 5, Nursing student)

> If they've just said, 'You've not structured it well', no good to anyone because ...how can I learn from that ...
> (Focus group, par 1, Medical student)

> We take on board their comments ... for example, if you've done something and the comment is this isn't done very well, so you'll try and obviously do it a lot better. So obviously next time, I've learnt from that and I won't do that again
> (Focus group, par 1, Dental student)

> I think it tells you what areas you need to focus on more as well. And with the comments, helps you know what you need to focus on for the next ones
> (Focus group, par 4, Dental student)

In relation to the marking rubrics, the majority of survey respondents found the rubric easy to understand, with 53% and 7% respectively strongly disagreeing and disagreeing that the rubric was not easy to understand. A combined 59% strongly agreed and agreed that the rubric clearly defined the requirements needed within each criterion and percentage banding. Only 13% of students strongly agreed or agreed a preference for previous marking criteria to the one provided through GradeMark®, although 47% of students were unsure about this. Overall 11% of students

strongly agreed and 53% agreed that marking had been fair within GradeMark®. However, only 39% of students agreed they could match comments received to the banding criteria in the rubric and only 32% agreed that the rubric helped improve their work, (45% were unsure) with 15% of students disagreeing that the rubric helped improve their work. Focus group data possibly reveals reasons for these mixed results. Those students provided with the opportunity to view the rubric prior to submission considered it a helpful learning aid. Those not exposed to the rubric beforehand evaluated it less positively, perhaps due to its unfamiliarity.

> If you've got the rubric it shows you what you're missing out on…, then you just have to look at it to see what you need to put in
> (Focus group, par 3, Nursing student)

> It guides us on the next assignment really…by having the rubric you can make an adjustment
> (Focus group, par 5, Nursing student)

> I thought that was quite good because it was pretty clear
> (Focus group, par 4, Dental student)

> It's simple. It was very easy to just look at, to pick out exactly where you were. You didn't have to go and scroll ...
> (Focus group, par 3, Medical student)

Some students reported difficulty in using the rubric online, which may also be a contributory factor to negative views.

> Yeah, and if you try to move the mouse, you lose that text, you couldn't just click on it and have it up while you're scrolling through your script. You'd have to hover the mouse over again, it was just slightly time consuming having to scroll through the script
> (Focus group, par 6, Dental student)

Suggestions for Improvement

In relation to the influence of GradeMark® on views about feedback, nearly three quarters (74%) of survey respondents strongly agreed or agreed that GradeMark® should be used more widely across the University. Twelve out of 21 nursing students and 6 out of 19 medical students responding to the free text survey questions reported GradeMark® to be an improvement on previous marking systems. The following ways to improve feedback through GradeMark® were suggested by students:

1. Provide preparation and training in the use of GradeMark®;
2. Ensure GradeMark® is available on compatible browsers;
3. Ensure students have access to rubrics prior to submission;
4. Prompt markers to provide detailed annotated comments and avoid single word feedback;
5. Prompt markers to provide positive as well as constructive feedback; and
6. Prompt markers to inform on how to enhance future work.

The following statements reflect students' views from all three focus groups.

> I think there's a lot more potential to GradeMark… obviously they can just click and give you an annotation wherever they want to. Whereas if someone's marking it by hand, they have a limited space to write and it's a lot more cramped
> (Focus group, par 3, Medical student)

> Yeah, it has a lot of potential; you can actually read what they say
> (Focus group, par 2, Medical student)

> It makes you feel a bit more positive about it I think. Because it makes you know where you can improve and that they said some things were good
> (Focus group, par 6, Dental student)

> I think just to stress that it was really good
> (Focus group, par 1, Medical student)

Discussion

This research set out to explore students' perceptions of the timeliness, accessibility, consistency, and quality of feedback received through GradeMark®. The survey, focus group, and open question responses of this study suggest that timeliness and accessibility of feedback were enhanced. Whether an improvement in the consistency and quality of feedback delivered through GradeMark® was achieved is difficult to ascertain, due to the complexities and interpretations of what constitutes 'consistent and quality' feedback from the students' perspective.

The survey findings revealed how the majority of students in this study perceived GradeMark® as easy to use and a useful learning tool through which to retrieve assignment feedback. The fact that 74% of students either strongly agreed or agreed that GradeMark® should be used more widely across the University is testimony to this.

It should be noted that favourable comments generally depended on students having had adequate preparation in the use of GradeMark® prior to assessment submission. Clear information on how to use the tool including instructions on submission, information on rubrics, and properties available within GradeMark® such as annotation, and on how to access feedback would be essential to GradeMark®'s success. The need for institutional commitment to ensure availability of appropriate technical infrastructure cannot be underestimated when considering the use of technology-enhanced initiatives such as GradeMark®.

The role of technology in facilitating effective feedback is an emerging concept in higher educational institutions. Heinrich et al. (2009) discuss how traditional routes to the provision of written feedback may be administratively burdensome and contribute to its delay and accessibility to students. These authors suggest that tools such as GradeMark® offer a potential solution through provision of more timely written feedback to students, easily accessible from any personal computer. Nursing students in particular appeared to find that the timeliness of feedback was improved through use of GradeMark®. Where this is the case it has the potential to positively impact on students learning. The optimum use of and engagement with feedback by students is dependent upon when it is made available to them (Carless, 2006; Heinrich et al., 2009); it is of greater value if provided when it still matters, in time for improvements to be made to future work (Gibbs & Simpson, 2004). Student feedback in our study was available electronically from any computer as soon as marks were released, eliminating any waiting time. This potentially advantaged students through the delivery of timely feedback, enabling them to influence future academic performance.

Bridge and Appleyard (2008) question whether students have the required level of IT skills to meet the challenges required for online electronic submission and retrieval of work. Students in their study reported lack of confidence, skills, and technological problems. Byrnes and Ellis (2006) found similar issues where students were positive about the use of paperless marking but reported concerns relating to assignment uploading problems and slow internet connections. Eleven per cent of students' in our study disagreed that accessing feedback through GradeMark® was easy and focus group themes revealed students from all three disciplines experienced techni-

cal problems relating to access difficulties, slow response, and formatting changes. Technical issues may interfere with the success of any online feedback system as the findings of our study demonstrated. Solutions that may help to reduce technical problems, minimise corruption of work, and speed up electronic working could be achieved from accessing GradeMark® through browsers such as Firefox, Chrome, or Safari.

Rubrics can offer a useful framework against which students can develop work to the required academic level. Students in our study who were introduced to rubrics in the development stage of their assessment found them helpful. Those with little awareness of the rubrics questioned their value. This raises the importance of providing students with assessment criteria whether or not a computer system is used to provide feedback. Suggestions for improvement highlighted by students centred on the importance of preparation in using the GradeMark® software and stability of the system. Detailed, elaborative feedback, as previously discussed, which focuses on feeding forward to improve future work dominated the students' perspective.

Quality of feedback is considered a key factor in the enhancement of future learning (Beaumont, O'Doherty, & Shannon 2011; Parboteeah & Anwar 2009), and students want and should expect detailed and constructive feedback. Whether this is always experienced is debateable (Price, Handley, & Millar, 2011). Perceptions of what constitutes quality feedback are dependent upon its interpretation. Students in this study perceived quality feedback as that which was constructive and easily understood, of use to future learning, and of sufficient quantity to be meaningful.

Constructive feedback should help bridge gaps between desired and current performance by explaining where and why students have made errors as well as suggesting ways to make improvements (Boud & Associates, 2010; Sadler, 2010). Thus, students benefit from what Shute (2008) describes as directive and facilitative feedback. Directive feedback verifies the accuracy of existing work while facilitative feedback informs on ways to elaborate further (Archer, 2010). Feedback through GradeMark® was more highly valued by students when it provided direction on how to improve existing and future work and prevent the repeating of mistakes.

Students find over-generalised or vague feedback unhelpful; it is more readily accepted and likely to result in improved practice when presented clearly (Weaver, 2006). One of the commonest problems experienced by students relates to difficulty in interpreting which aspect of their work feedback relates to, that is, its specificity (Adcroft, 2010). Students in this study reported feedback received through GradeMark® enhanced its specificity due to assessors' ability to deliver feedback as annotated comments placed alongside text. Students appeared to like this feature, commenting that it increased the meaningfulness of feedback. Such findings tentatively suggest that improvement to the quality of feedback may be facilitated by GradeMark®, although it is open to the same limitations as other types of feedback. Unless feedback is detailed, understandable, jargon-free, and clearly applied, it is of little use. The influence of the marking rubric may have also influenced students' positive view on their feedback

A range of factors negatively affected student perceptions of GradeMark® that were unrelated to the online software and focused on feedback practice. Dissatisfaction with feedback arose when it was deemed ambiguous, which is a well-recognised criticism (Archer, 2010; Hanna & Yearwood, 2012; Price, Handley, Millar, & O'Donovan, 2010). GradeMark® does not appear to change academics' marking practice. It is important to remember that provision of online feedback, either as annotated comments alongside text or as general comments, does not necessarily translate into the provision of what could be deemed quality feedback.

Strengths and Study Limitations

The 62% response to the on-line survey may be regarded as noteworthy when considering response rates to such surveys often fall below 30%. It is acknowledged this figure was reached

through combining response rates from each respective school's survey, which may be a limitation due to sampling bias (Nulty, 2008).

Relying on students' perceptions to evaluate the GradeMark® tool has its limitations as learning what students like is legitimate; equating what students like and what is in fact best for them is quite another. Other limitations include the low numbers in the nursing and medical student focus groups and the high number of participants in the dentistry focus group. However, an amalgamation of the focus group and survey data serves to strengthen the findings of the study.

Conclusion

The introduction of GradeMark® was a mostly positive experience for students. It enhanced their learning and teaching experience, which may yield secondary rewards for Higher Education Institutes (HEI) in elevating National Student Survey scores in the domain of assessment and feedback. Our findings suggest that GradeMark® improved the timeliness and accessibility of feedback for students, provided they are given clear instruction on the use of the software, and technical support is made available in the early stages of adopting the system. This does not differ from any new technology students are requested to engage with as part of their learning and teaching experience in HEIs. The provision of information and mock sessions to allow students to practise using Grademark® prior to electronic submission and retrieval of feedback will reduce anxiety, increase confidence, and positively enhance skills required to access feedback in a timely manner.

GradeMark® acted as a catalyst for reviewing the quality of academic practice in relation to feedback and to gain student opinion as to what could be improved, a distinct advantage not previously considered. Our findings indicate that such rubrics should be available to students, as well as the development of written assessments to enable performance to be enhanced through self-evaluation against the criteria. It is recognised that these issues constitute excellence in academic practice, not confined to the use of electronic methods of feedback.

Our findings are inconclusive as to whether GradeMark® improved the quality of feedback. Annotation was greatly valued by students and, although not confined to GradeMark®, offers a method of standardisation for review and audit of academic feedback across schools and institutions. This hidden advantage is not widely publicised and, if adopted as standard practice, may do much to improve students' learning experience.

The positive outcomes from this research have led to the integration of GradeMark® into the working practice of Schools involved in the study. Our experiences should help inform future academic practice in planning a pragmatic approach to the delivery of quality electronic feedback, using a system such as GradeMark®. The findings add to the body of knowledge regarding what may help to constitute excellence in written academic feedback on theoretical essay type assessments, based on students' aspirations. However, further research is required to evaluate whether GradeMark® can indeed improve the quality of feedback, and once embedded, whether students' favour such a system over and above others which may be in place. Students' learning and teaching experience and views of academic practice will influence the future success and viability of programmes offered by HEIs.

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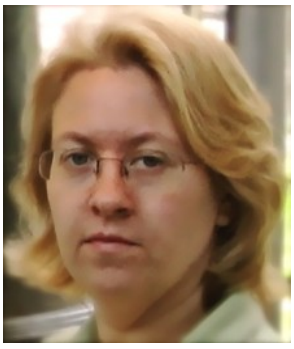

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