Abstract

Research shows that feedback on students’ writings can greatly help students to learn, provided that the feedback is given in a timely manner, is sufficiently informative for the students and that opportunities are present for students to act on the feedback (Hattie and Timperley, 2007; Shute, 2008; Gibbs, 2010). In practice, however, it appears that in spite of the amount of time teachers spend on assessing their students’ work, the potential gains to be made from feedback, frequently remain untapped by students. In the last decade, there has been a steady growth in the area of dedicated marking and feedback tools, including marking software for written essays (Heinrich and Milne, 2012; van Boxel, 2012). The practical and pedagogical benefits these tools offer, include easier assignment handling and storage of feedback, and more varied ways in which feedback on written student work can be constructed. Whilst the rich potential for more effectiveness of teacher’s marking practices is starting to emerge, it is recognised that the real impact is yet to be illustrated, and that further evidence is required, especially with regards to educators’ points of view (Buckley and Cowap, 2013; Herman et. al, 2014).

This paper presents the results of a case study which took place in an introductory Psychology course taken by 500 first-year students at the VU University Amsterdam. Twelve teachers provided first year Psychology students with online feedback on a series of written essays using the GradeMark marking tool. Different feedback types were employed at various stages of the essay writing process, such as text annotations and grading forms (‘rubrics’). The tutors all made use of the same set of pre-developed feedback fragments and rubrics.

The first aim of the case study was to investigate whether the shift to an online marking process would help teachers to develop a more efficient workflow, and consequently save time. The second aim of the study was to investigate how the use of different types of digital feedback instruments would contribute to the quality of the feedback.

Teachers’ and students’ perceptions regarding effectiveness and feedback quality were obtained via online questionnaires and interviews with the course coordinators. Results show that the use of GradeMark did save time according to half of the teachers. Particularly text-annotated feedback that is directly linked to the work of the students, combined with personal summarizing remarks, was perceived as quality-enhancing by students as well as teachers. The perceptions of the effectiveness of a rubric (grading forms) revealed a more mixed picture amongst both groups. Recommendations for implementation of a digital feedback tool in large courses with multiple teachers are discussed.

Keywords: digital feedback; reduction of teacher time; efficiency; feedback quality; large classes; implementation of feedback tool, text-annotation, rubrics

1. Introduction

It is clear that providing feedback is an important teacher task. Review studies by Hattie and Timperley (2007) and Shute (2008) have shown that feedback can greatly help students to achieve their learning goals. Feedback on students’ writings can greatly help students to learn, provided that the feedback is given in a timely manner, is sufficiently informative for the students and that opportunities are there for students to act on the feedback (Hattie and Timperley, 2007; Shute, 2008; Gibbs, 2010). Nicol (2009) gives specific recommendations for good teacher feedback: it needs to be understandable for students, selective, specific, timely, contextualized, nonjudgmental, balanced, forward looking and transferable.

In practice, however, it appears that in spite of the amount of time teachers spend on assessing their students’ work, the potential student gains to be had from feedback frequently remain untapped. This is regrettable, not
just because students are missing out on opportunities to learn, but also because it is important that the limited amount of teaching time available is used as effectively as possible. The question therefore arises as to whether, and how, the practice of giving feedback can be made more effective and more efficient.

In the last decade, there has been a steady growth in the area of essay feedback and marking software including Moodle workshops, GradeMark (Turnitin), Waypoint, Markin and WebMark (Welch, 2012; van Boxel, 2012). Heinrich and Milne (2012) and Welch (2012) identify both practical and pedagogical benefits of using marking software. The digital management of written assignments provides logistical benefits which can result in time and cost savings and a generally more efficient marking ‘workflow’ for the teacher. Online marking can also contribute to better feedback quality. It requires teachers to make their feedback criteria explicit, which may signify a departure from their former, more implicit ways of marking, instead using predefined assessment criteria. The possibility these tools offer to re-use stored and categorized feedback makes it easier for teachers to provide students with feedback at crucial times in the learning process.

Marking tools often enable feedback to be delivered via rubrics. Heinrich and Milne (2012) describe these as being the ‘centre of an educationally sound marking system’. A rubric is a matrix in which multiple assessment criteria for an assignment are identified (e.g. grammar, methodology, structure) and graded in terms of different levels of achievement (unsatisfactory, satisfactory, good, excellent). For each level, a qualitative description may be given, providing the student with insight in both the required level of performance and his actual performance. The growth perspective offered by a rubric redefines the concept of feedback to that of feedforward. A rubric can also be used to provide higher-level feedback over the lifespan of a course or even curriculum (e.g. to monitor academic skills progress amongst students).

Research to date indicates that students generally have a positive attitude towards the online handling of assignments, due to the time and place independent submission of their work. Factors identified by students which contribute towards the quality of online feedback include greater anonymity, a greater volume of comments compared to paper-based marking, and feedback being connected to the point of error in the text, as opposed to handwritten comments in the margin (Herman et. al., 2014). Teachers also tend to display a positive attitude towards online handling and marking of assignments, pointing at increasing efficiency of the marking process, and easier and quicker marking of certain assignment formats (Buckley and Cowap, 2013). Whilst the potential for more effectiveness of teacher’s marking practices is starting to emerge, it is recognised that the real impact is yet to be illustrated, and that further evidence is required, especially with regards to educators’ points of view (Buckley and Cowap, 2013; Herman et al, 2014).

This case study was conducted to increase insight in the use of digital feedback tools. Digital tools can be designed with varying affordances. The specific design of a feedback tool can be expected to shape the way feedback is given, making some ways of use more likely than others. The contribution of our case study to the current research is an in-depth look at how the feedback giving process is implemented within specific marking software and the users’ experiences with the software.

**Affordances of the GradeMark grading tool**
The marking software used was GradeMark. There are reasons to expect that the use of this grading tool can potentially raise the feedback quality and save teachers’ marking time.

**Clarity and formulation of feedback**
First of all, feedback has to be understandable for students; a basic prerequisite being that feedback should be readable. Digital feedback eliminates the issue of illegible teachers’ handwriting. Secondly, the way feedback is formulated is important; feedback should be comprehensible and encouraging for students in order to be effective (Nicol, 2009; Lizzio & Wilson, 2008; Agius & Wilkinson, 2013).

Since in GradeMark feedback can be stored and re-used, it has to be formulated only once. This can make it worthwhile for teachers to invest time in the formulation of carefully crafted feedback.

**Advantages of annotations**
Students value focused and specific comments, especially when it comes to formative feedback. In their literature review on the perceptions of students (and teachers) of written feedback, Agius and Wilkinson...
(2013) concluded that students prefer margin comments (annotations) to feedback on cover sheets, because annotations give them more guidance on where and how to improve their writing. In GradeMark, it is possible to link feedback comments to highlighted elements in the submission, which allows for showing students specific examples in their work where the feedback applies to. This can be expected to contribute to the students’ understanding of and appreciation for the feedback.

**Alignment with assessment criteria**

As has been noted in the literature, alignment of the feedback to the instructional context is essential for learning (Nicol, 2009). GradeMark offers the functionality to link an assignment to a rubric, which allows for learning goals and assessment criteria to become more transparent. In Grademark, the rubric can be made visible for students before they start working on their assignment, which can guide them during their work.

**Personalized feedback**

Feedback has a relational and socioemotional aspect as well. If students perceive that the assessor is engaged with their submission, they find the feedback fairer and more acceptable (Lizzio & Wilson, 2008). Thus, feedback should have a personal touch, revealing the engagement of the marker with the student’s work. In GradeMark especially the ‘General comments’ and the possibility to create personal annotations in the students’ texts, provide possibilities for personalized feedback.

**Timeliness of feedback**

The digital mode can contribute to the timely delivery of feedback to the extent that the online grading tool saves teachers’ time which can result in faster delivery of the feedback. Secondly, because students have access to their feedback anytime they don’t have to wait till next class meeting for receiving feedback.

Other quality issues are less depending on the digital mode and are more determined by the design of the learning situation (e.g. if there is a possibility for students to act upon the feedback, for instance by the application of multistage assignments) and the content of the feedback (e.g. is the feedback directed to the task or the writing process).

**Time saving for teachers**

Teachers spent a considerable amount of time on providing feedback on students’ works. Digital marking tools may provide logistical benefits which make the ‘workflow’ for the teacher more efficient. Grademark helps teachers to control their workload, by the central collection and storage of essays, the overview of students that submitted their papers, the in-built check for plagiarism, and the possibility to re-use feedback comments.

2. Description of the case study

2.1 Educational context

The purpose of the case study was to investigate whether the employment of this digital feedback practice by a team of teachers would:

- help teachers to keep the time spent on giving feedback under control
- increase the quality of feedback through the use of different feedback types
- encourage a more consistent feedback approach by teachers

The case study was carried out from September to October 2012. The course was a first-year Bachelor course on Methodology, taken by five hundred students on the education and psychology study programmes. The aim of the course is to give an initial introduction to scientific thinking and research methods. It is an intensive course in which students write several assignments. Small-group tutorials were given by twelve –mostly junior - teachers, who were also responsible for assessing the assignments and providing feedback on them. These tutorial teachers were working under the supervision of an experienced course coordinator.

Each student wrote six assignments in six weeks, on which the teachers gave written feedback. Students had to receive their feedback quickly enough so that they could use it to improve or correct the next version of
their assignments. This placed considerable strain on the teachers, who had to provide feedback on a large number of assignments in a very short time. In previous years, there was a great deal of variation in how teachers gave feedback to students on this course. The coordinating teacher hoped that the use of a joint feedback instrument would increase the consistency of the feedback among the teachers.

The large scale of the course also generated some practical problems, such as organizing the logistics; the administration of the assignments after they had been handed in; and distribution of feedback and marks back to the students. The course coordinator envisaged that using GradeMark would therefore also lead to an improvement in assignment management procedures.

2.2. Description of the feedback process and marking tool

Feedback software – The software that was used for giving feedback was GradeMark (part of iParadigm’s Turnitin software suite). Teachers and students accessed the GradeMark feedback environment via the university’s virtual learning environment (Blackboard). GradeMark allows for feedback to be given by means of annotations in the text, a marking scheme (‘rubric’), general comments (either written or in the form of a short voice recording). In this pilot all of these three functionalities were used.

Text annotations – GradeMark provides the possibility to build up a library of feedback commonly-used feedback (known as ‘QuickMarks’). These QuickMarks can be placed at specific places in the students’ writings, and can be linked to specific text elements (e.g. to a paragraph, a sentence, or a single word). Teachers can formulate personalized text annotations, or can drag and drop re-usable feedback comments from a library.

In this course, five ‘QuickMark’ sets were developed, which related to the different sections of a research report: Introduction, Method, Results, Conclusion, and Discussion, with a total of thirty feedback fragments. In addition, a sixth set of ‘general’ comments was devised (in relation to the use of language, references to literature, and a list of positive comments). Each QuickMark set consists of a pre-constructed feedback section and space for additional comments which the tutorial teachers could give to individual students as a means of further explaining the pre-written feedback (see Figure 1). Formative feedback was given for the first five assignments by means of these standardized QuickMark sets.

![Figure 1 Example of a Quickmark set (right window) and QuickMark text annotation in a student essay](image)

Rubrics – furthermore, two rubrics were developed. They were used formatively (for the first assignment) and summatively (for the final version of the report). The rubric matrix consisted of a four-point performance scale and predefined assessment criteria. The cells of the matrices described the reached and required level of performance in qualitative statements. The aim was to provide students with information on their current level of achievement, and guidance towards further progress on the performance scale. For the final version of the report, the rubric was used to determine the assignment grade.
General comments – the teachers used the functionality to write general comments for the whole of the student’s work. General comments are free text, and can range from a few words till a number of paragraphs.

Division of duties – The Quickmarks and rubrics were designed by the course coordinator and an experienced teacher. The Quickmarks were formulated on the basis of feedback fragments which had been developed in previous years by a number of teachers who – on an individual basis – had started to use GradeMark. Educational training and technical support were provided by the central educational support service of the university, which also carried out the case study evaluation.

Teacher training – All the teachers attend a workshop, which was aimed primarily at discussing the goal of giving feedback in the context of this course, developing a shared interpretation of the predefined feedback fragments, and agreeing on how to grade the students’ papers. Among the topics discussed was for example the emphasis that should – or should not – be placed on spelling and grammatical errors vis-à-vis feedback on the content of the students’ assignments. A practical instruction on how to use the digital feedback tools was part of the workshop as well.

2.3. Research methodology
A combination of quantitative and qualitative research methods were used in this case study. Quantitative data were derived from two different online questionnaires (a teacher and student version). The questionnaires contained statements (five-point Likert scale), yes/no questions, and open-ended questions. The Likert-scale questions were coded from -- (code 1, ‘strongly disagree’) to ++ (code 5, ‘strongly agree’). Qualitative data were gathered by means of open-ended questions in the questionnaires and in an interview with the course coordinators.

3. Results

3.1. Response
At the end of the course, students and teachers were asked to complete an online questionnaire. Hundred and one out of the 500 students completed this (a response rate of 20%), and seven of the twelve teachers.

3.2. Results from the student evaluation
Receiving digital feedback
In general, students were positive about using a digital feedback tool. A clear majority found it easy to hand in their work digitally (M=4.2; SD 0.73) and to consult their teacher’s feedback online (M=4.0; SD 0.88).

Speed and quantity of the feedback
The students were reasonably positive about the speed with which they received feedback (M=3.65; SD 0.94), and they were satisfied with the amount of feedback they received (M=3.87 SD 0.92).

Quality of the feedback
The students were also positive about the quality of the feedback, with more than half giving it a score of 8 or more out of 10. Eighty percent of the students stated that the amount of feedback was sufficient.
Affordances of different feedback types

Annotations in the text – Students value feedback that is written directly in their texts (Table 1). Qualitative statements derived from the questionnaire indicate that students appreciate the fact that the feedback is directly linked to specific text fragments in the essay, and that it usually contains enough concrete information on how to make improvements. It was perceived by a majority of the students as being ‘motivational’. Ninety-two percent answered the question whether ‘they would like to receive this type of text-annotated feedback in future assignments’ affirmatively.

Table 1: Student evaluation of feedback via text annotation

<table>
<thead>
<tr>
<th>Student views on the value of text annotation as a means of feedback</th>
<th>Av</th>
<th>Sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found the feedback in the text clear</td>
<td>3,81</td>
<td>0,74</td>
</tr>
<tr>
<td>I found the feedback in the text motivational</td>
<td>3,81</td>
<td>0,77</td>
</tr>
<tr>
<td>The feedback in the text helped me improve my work</td>
<td>4,20</td>
<td>0,63</td>
</tr>
</tbody>
</table>

Rubrics – The students’ appreciation of the rubrics shows a somewhat less clear-cut picture. Rubrics get the highest valued with regards to their function of making assessment criteria more transparent. It can also provide insight in strong and weak points in the students’ performance. Some students commented that they would like to see the improvements or corrections they need to make set out in more concrete terms. Also, the relationship between the rubric and their final mark was not always entirely clear. Nonetheless, a large majority of students (89%) stated that they would like to be assessed for other subjects in the future by means of a rubric.

Table 2: Student evaluation of feedback via rubrics

<table>
<thead>
<tr>
<th>Student views on the value of rubrics as a means of feedback</th>
<th>Av</th>
<th>Sd</th>
</tr>
</thead>
<tbody>
<tr>
<td>The rubric made clear on which aspects my work was being assessed</td>
<td>3,87</td>
<td>0,58</td>
</tr>
<tr>
<td>The rubric gave me a better idea of what my strong and weak points are</td>
<td>3,62</td>
<td>0,81</td>
</tr>
<tr>
<td>The rubric helped my to understand the grade I was given</td>
<td>3,32</td>
<td>0,90</td>
</tr>
</tbody>
</table>

3.3. Results from the teachers’ evaluation

Giving digital feedback – Teachers were almost unanimously positive on giving digital feedback on written assignments. They indicated that the system was easy to get used to, and that it was a helpful tool when evaluating students’ work. All teacher respondents indicated they would like to use digital marking in the future, both for giving feedback and for grading student work. The course coordinator also considered it a permanent future method for marking, stating that ‘it is an excellent tool to work with - it would seem very old-fashioned to go back to marking papers with the help of a pen again’.

Quality of feedback – Teachers mostly perceived the use of a QuickMark set and the summarizing remarks as contributing to the quality of their feedback. The rubric was not felt to considerably enhance quality. Some teachers thought that this particular rubric was too broadly formulated, or insufficiently relevant to the points being assessed. In spite of this, a majority (60%) would still like to use a rubric to give feedback and assess work in future courses.

Enhancing consistency – According to the course coordinator, this method of working indeed led to more consistent feedback than in previous years, stating ‘everyone – both teachers and students – is pulling now in
the same direction”. It also allowed to reach easier agreement in the case a second marker was brought in. The teachers were less unanimous when it came to responding to the statement, “whether the use of the same rubric meant that the feedback or evaluations closely corresponded” (20% agreed, 40% disagreed, and 40% neither agreed nor disagreed).

*Saving time and improving the logistics* – Half of the respondents indicated that GradeMark saved time with regards to marking. Estimates of the actual amount of time saved, ranged from ten to thirty percent. It should be pointed out that some teachers did not believe that the software provided optimum support with regard to the logistics of checking work. One feature they missed, was having a clear visual overview of which papers they already provided with feedback, and which ones not, meaning they something had to open papers again to double check whether they already had inserted feedback. Also, the system did not provide optimum support for the creation of separate subgroups for each teacher.

4. Conclusion and discussion

The most important conclusion from this case study is that Turnitin is a useful tool for teachers to provide feedback quickly to a large group of students. The use of the online feedback tool is appreciated by both teachers and students alike, which is consistent with earlier studies (Herman et.al., 2014). In this study, we went one step further than in previous studies, by looking in-depth at the functionality of the feedback tool used. This revealed that students and teachers showed a high appreciation especially of text annotations in the form of QuickMarks, standardized and reusable feedback comments that are linked to specific text passages. Students found this form of feedback clear and motivational, and an excellent tool when improving their texts. This confirms the preference for margin comments that was reported by Agius and Wilkinson (2013).

The rubrics were also rated fairly highly by the students, although they were less effective – as far as the students were concerned – at making clear what the evaluation of their work was based upon. Some teachers struggled with using the rubric, and believed that the relationship between the mark (for an assignment) and the textual corroboration of the mark did not ‘correspond’ when used summatively. The coordinator thought that in some areas the rubric was formulated too “rigidly”. A new rubric has since been devised on the basis of these experiences.

In the view of the coordinator, the use of one single assessment system for essays has indeed helped to improve consistency in the feedback given by different teachers. This is primarily due to the use of a common QuickMark set. The teachers were very willing to use a generic set of comments, perhaps because they are relatively young and less experienced, and “still finding their way when it comes to carrying out evaluations”. If the tool is used in this way, it can indeed contribute to the quality of feedback.

The teachers reported to have saved some time during this case study. Bearing in mind that a great deal of time was initially invested in developing the feedback, as the QuickMark set gets re-used in future courses and teachers have become familiar with the software, time savings should even be more significant. In addition, the teachers believe that the feedback set can also be used in other courses they teach. The coordinator and co-developer spent a lot of time developing the set, but the investment has been worthwhile: the availability of a feedback instrument with a collection of high quality, standard feedback comments, which allows the important task of providing feedback to be carried out effectively. The benefits of such an instrument are expected to be reaped in the years to come in the teaching of methodology courses and beyond.

**Acknowledgements**

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References


