

Experiences and Understanding of Screencast Feedback on Written Reports in the Bachelor Pharmacy

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Abstract

Screencasts are teaching tools which allow recording of the computer screen while adding audio. To investigate whether screencasts might be a promising method to provide students with feedback on written assignments, screencast feedback was provided on a written assignment in a first-year course of the Bachelor Pharmacy at Utrecht University. The aim of the study was to explore the experiences of both students and teachers with, and students' understanding of, screencast feedback on written reports. Individual interviews (n=9) were conducted to explore the experiences and understanding of students. Teachers' experiences were explored in a focus group interview. The results show that students especially valued the feedback quality, multimodality, and personal feeling of screencast feedback. Understanding of the screencast feedback in terms of ability to explain the feedback in own words, translate it to adaptations in the report, and translate it to adaptations in future assignments was satisfying to good. Teachers, however, were less positive and experienced screencast feedback as time-consuming and uncomfortable, and it did not match their beliefs about effective feedback. Hence, although screencasts seem to facilitate giving effective feedback through the possibility for specific and personalized feedback, it remains difficult to choose a feedback method that fits everyone and every situation. Specific contextual conditions and personal preferences should be considered before choosing which feedback method to apply.

Keywords

feedback; screencast; video; writing skills

Introduction

Screencast tools allow recording of the computer screen while adding audio and can be used to provide feedback on written assignments (Ball, 2010). Screencast feedback is a promising alternative for written feedback because it is more specific, detailed, and personal and has the

potential to engage the student in ongoing learning (Ali, 2016; Jones et al., 2012; Mahoney et al., 2019). To investigate whether screencasts might be a promising method to provide students with feedback on written assignments, screencast feedback was provided on one of the written assignments in a first year's course of the Bachelor Pharmacy at Utrecht University, and the experiences of both students and teachers with screencast feedback, and students' understanding of the feedback, were explored.

Feedback

It is generally accepted that feedback is a very effective and powerful tool to improve students' learning (Hattie & Timperley, 2007). Constructive and thorough feedback helps students to improve understanding about the goals and criteria of the assignments, gives students insight into their strengths and weaknesses, and provides ideas on how to improve a product (Hattie & Timperley, 2007). Effective feedback should give the student insight into the following three questions: How am I going? (feed back), where am I going? (feed up), and where to next? (feed forward) (Hattie & Timperley, 2007). Hence, it is important that students understand the feedback to be able to reflect on and improve their performance (Hattie & Timperley, 2007; Kahu, 2007). Additionally, for feedback to be effective it should be manageable, timely, and connected to the perspective of the student (Shute, 2008).

In higher education, giving effective feedback is very often seen as tedious and time-consuming, especially in courses with many participants (Higgins et al., 2002). Although verbally addressed feedback is perceived positively by students (Agricola et al., 2020), this can be a time-consuming process for teachers (Nicol & Macfarlane-Dick, 2006). Therefore, feedback on written reports is usually provided by making notes in the document, filling in a rubric, or writing down remarks on a form. However, written feedback is often difficult for the learner to interpret and translate to specific adjustments for improvements (Higgins et al., 2002). Screencasts are an alternative way to provide students with feedback on written reports. This method of giving feedback enables the teacher to provide larger quantities of specific feedback compared to written feedback without meeting with students one-on-one. In addition, it may improve students' perception and use of the feedback.

Screencasts as a Tool to Provide Feedback

A screencast is a digital recording of a computer screen to which audio narration can be included (Henderson & Phillips, 2015; Udell, 2004). Screencast tools allow teachers to evaluate students' work on a computer by capturing the screen and adding spoken feedback while correcting a text or playing a video (Ball, 2010; Henderson & Phillips, 2015; Udell, 2004). In this way, the tool can be used to provide students with feedback (Ali, 2016; Henderson & Phillips, 2015; Mahoney et al., 2019; Mayhew, 2017).

The use of screencasts to provide feedback on written assignments was reviewed in a meta-analysis by Mahoney et al. (2019). The authors concluded that video feedback is highly accepted amongst students and markers. Some characteristic features of screencast feedback highlighted by Mahoney et al. and others are described below.

Firstly, screencast is a *multimodal* way of providing feedback to students (Mahoney et al., 2019). Students not only can read the feedback, but the feedback is also audible and tracings of the cursor plus examples are provided. The video can be viewed in the student's own time and can be replayed more than once.

Secondly, both perceived *quality and quantity* of the feedback have been found to improve by means of screencast feedback as compared to written feedback. Feedback provided by the teacher via screencast was discovered to be more detailed and clear (Ali, 2016; Henderson & Phillips, 2015; Mathisen, 2012; Mayhew, 2017). Also, students reported that screencast feedback contained more detailed information as compared to written feedback (Mayhew, 2017). Similar results were found by Mathisen (2012), who showed that students experienced that screencast feedback contained more nuance, had a high richness in explanation, and contained many examples.

The literature shows that students who received video feedback perceived the feedback to be more directed towards feed-forward remarks (Ali, 2016; Henderson & Phillips, 2015). The remarks not only focused on mistakes made in the current product but also provided help and insight for future assignments. In addition to the students' perspective, teachers' experiences also indicate that feedback given via screencast is more substantial and oriented towards arguments and feed-forward comments and the process rather than assessing grammar and writing (Lamey, 2015). After analysing screencast feedback and comparing these with written feedback, Henderson and Phillips (2015) found that screencast feedback indeed contained more feed-forward comments compared to written feedback.

The higher perceived quality and quantity of screencast feedback resulted in an increased *student engagement* with the feedback (Crook et al., 2012) and increased motivation of the students (Mathisen, 2012), both aiding enhanced student learning. Students' engagement with feedback is one of the important aspects of feedback (Winstone et al., 2017).

Thirdly, the perception of feedback via screencast by students is very often reported as *personal*. Although there is no face-to-face interaction with the teacher, students feel recognised and appreciated by their teacher with screencast feedback (Ali, 2016; Anson et al., 2016; Henderson & Phillips, 2015; Mathisen, 2012). This could lead to strengthening of the student-teacher relationship (Ali, 2016) and increased willingness of the students to actively get to work with the feedback (Mathisen, 2012).

On the other hand, a concern about the use of screencast feedback is that some students report experiencing *anxious* feelings before viewing the video feedback (Henderson & Phillips, 2015; Lamey, 2015). The feedback can be perceived as too personal and confronting, since the teachers are not always able to suppress negative emotions in their tone of voice. Not being able to respond to the feedback can make the students feel helpless (Henderson & Phillips, 2015; Lamey, 2015).

Fourthly, although the literature points out a positive attitude of students towards receiving feedback by means of screencasts, *teachers* should also feel comfortable with this way of providing feedback. In the literature, the reported perspective of teachers towards producing screencast feedback is mainly positive (Henderson & Phillips, 2015; Lamey, 2015). Lamey (2015) experienced that his screencast feedback was more positive and directed towards future assignments (feed forward) compared to written feedback. Likewise, Henderson and Phillips (2015) reported that the comments in the screencasts were more about future directions and less on spelling errors, which increased the *enthusiasm* of the teachers for the task. Also, the video gave room to elaborate more and appealed to the teachers' creativity (Henderson & Phillips, 2015).

Another advantage for the teacher could be the *time-efficient* nature of this way to provide feedback. While providing feedback is often seen as a tedious and time-consuming task by markers, teachers think that giving video feedback simplifies the task (Mathisen, 2012) and is more time-efficient compared to written feedback (Henderson & Phillips, 2015). Although not all results report an increase in the time-effectiveness, it is shown to be at least not more time-consuming compared to written feedback (Mayhew, 2017). Whether providing screencast feedback is time-efficient might also depend on the teacher's experience with this technology (Mathisen, 2012).

Finally, *technical issues* are reported as a possible drawback of using screencast. Both students and teachers can encounter technical difficulties when viewing or recording the feedback (Ali, 2016). Good instructions to both teachers and students are necessary to overcome these types of problems.

Although it was shown that screencasts increased the perceived quality and quantity of the feedback and increased students' engagement, the purpose of the feedback is that students learn from the remarks and improve their *performance*. In other words, does screencast feedback aid students in their learning process? Several studies reported that video feedback improved the writing skills of students. For instance, Denton (2014) showed that a revised submission of the assignment after receiving screencast feedback was improved significantly. Grigoryan (2017) showed that screencast feedback in addition to written feedback also improved students' performances. Ali (2016) compared the effect of screencast feedback with written feedback on the improvements of a revised version and found that students who received screencast feedback on their first assignment outperformed students who received written comments. Although these studies showed that students' performance increased with video feedback, it was not investigated if and to what extent students understand the feedback provided via screencasts.

Aim of the Study

Screencasts might be a promising alternative to written feedback. However, before implementing screencasts to provide feedback, more insight into both experiences of students and teachers as well as the effect on student understanding is required to be able to thoroughly consider all the pros and cons. The goal of this study is to explore the experience of both students and teachers with, and students' understanding of, screencast feedback on written reports in a first-year course in the Pharmacy curriculum of the Utrecht University in the Netherlands.

Research Design

Setting and research participants

The study was approved by the ethical committee of the Faculty of Sciences at Utrecht University.

The present study was conducted in the compulsory course "Academic skills" of the first-year Bachelor Pharmacy at Utrecht University in 2018–2019. The course involved a total of 143 student and 6 teachers. All 143 students completed a research report over a period of 10 weeks at the end of the first semester. Most students experienced receiving screencast feedback in a previous assignment and, based on this experience, they were invited to request

screencast feedback before delivery of the research report. After delivery of the report, students that requested screencast in advance and passed (n=11, screencast-pass [SP] group) and students that failed the report (n=9, screencast-fail [SF] group) received screencast feedback and a filled rubric (see Figure 1). All other students received written feedback comments provided underneath the filled rubric (the standard feedback approach for the respective assignment) (written-pass [WP]) group).

A total of 20 screencasts (SF and SP group) were recorded by five teachers. Each teacher recorded 1-9 screencast feedback videos. One teacher (A) decided not to record screencast feedback due to privacy issues.

All students who received screencast feedback (SP group and SF group, n=20) were invited to participate in the study and to take part in an individual interview aimed at investigating their experiences and understanding of the received feedback. Six students from the WP-group were invited using criterion sampling as described by Palinkas et al. (2015). The criteria used were corresponding grades and corresponding feedback providers (e.g., teachers) with the participants of the SP group. In total, 5 students from the SP group, 2 students from the SF group and 2 students from the WP group agreed to participate. Table 1 shows the characteristics of the participating students.

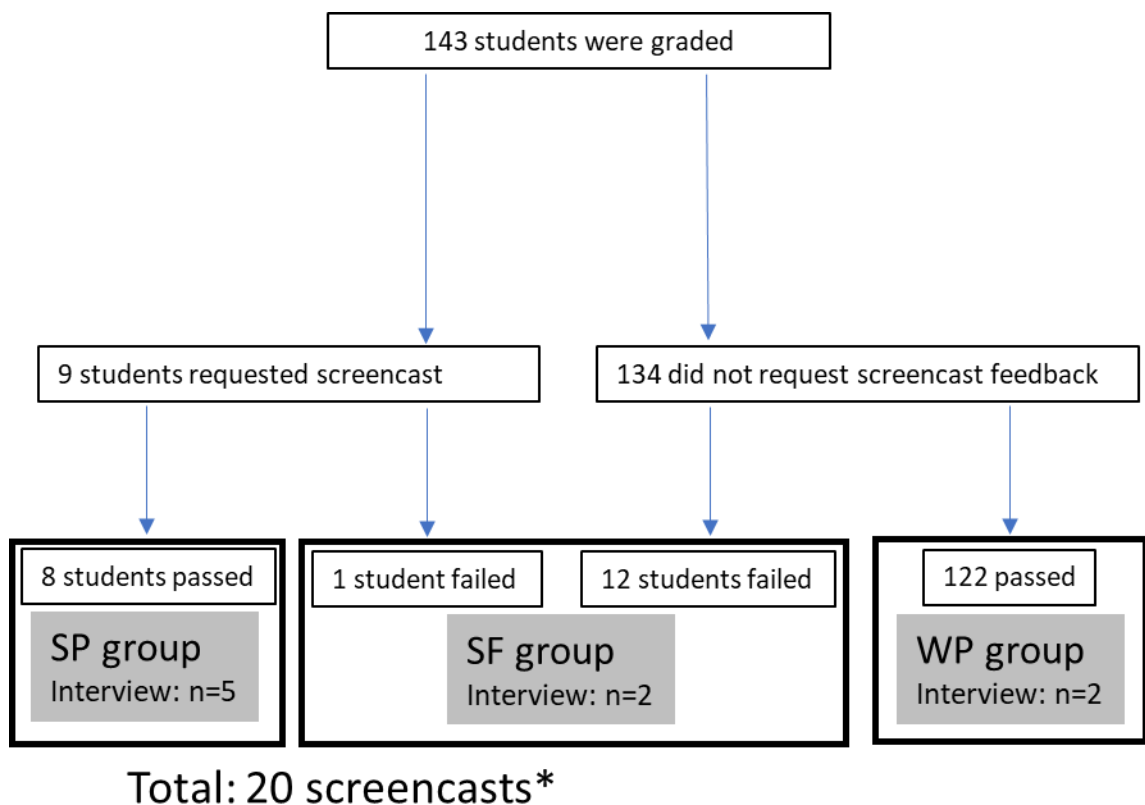


Figure 1. Flowchart of the study showing the selection of participants and groups. SP = screencast pass (grade above pass grade 5,5; screencast feedback requested), SF = screencast fail (grade below pass grade 5,5 and therefore screencast feedback) and WP = written pass (grade above pass grade 5,5 with regular feedback).

Table 1. Characteristics of student participants

Student	Group	Grade	Experience with screencast?	Teacher
1	SF	5,4	Yes	C
2	SF	5,3	Yes	F
3	SP	7	Yes	C
4	SP	7,4	Yes	C
5	SP	8	Yes	C
6	SP	5,7	Yes	D
7	SP	8,3	No	E
8	WP	7,3	Yes	C
9	WP	6,7	No	D

Four out of six teachers took part in the focus group on their experience with providing screencast feedback (see Table 2). The other two teachers agreed to participate but were not able to attend the group interview due to personal circumstances.

Table 2. Characteristics of teacher participants

Teacher	Participation in focus group	Taught in the course before?	Experience with screencast?	Number of screencasts recorded
A	Y	Y	N	N=0*
B	Y	Y	Y	N=0
C	Y	Y	Y	N=9 (N=5 SF group; N=4 SP group)
D	Y	N	Y	N=8 (N=5 SF group; N=3 SP group)
E	N	N	N	N=1 (SP group)
F	N	N	Y	N=1 (SF group)

*Teacher A had 1 student from SF group, but decided not to share screencast feedback

Feedback Procedure

Screencasts were recorded using SnagIT Software or Screenflow. In the video the report of students was visible while the teacher explains the feedback (see Figure 2).

Before the recording process, teachers made clear agreements on the content and length of the video. Agreed was that the video should i) include an introduction, ii) discuss a maximum of 3 feedback items (including 1 positive item) iii) refer to the rubric, and iv) have a maximum length of 5 minutes.

After recording, the videos were saved on a server and shared with students via a link displayed at the top of the rubric.

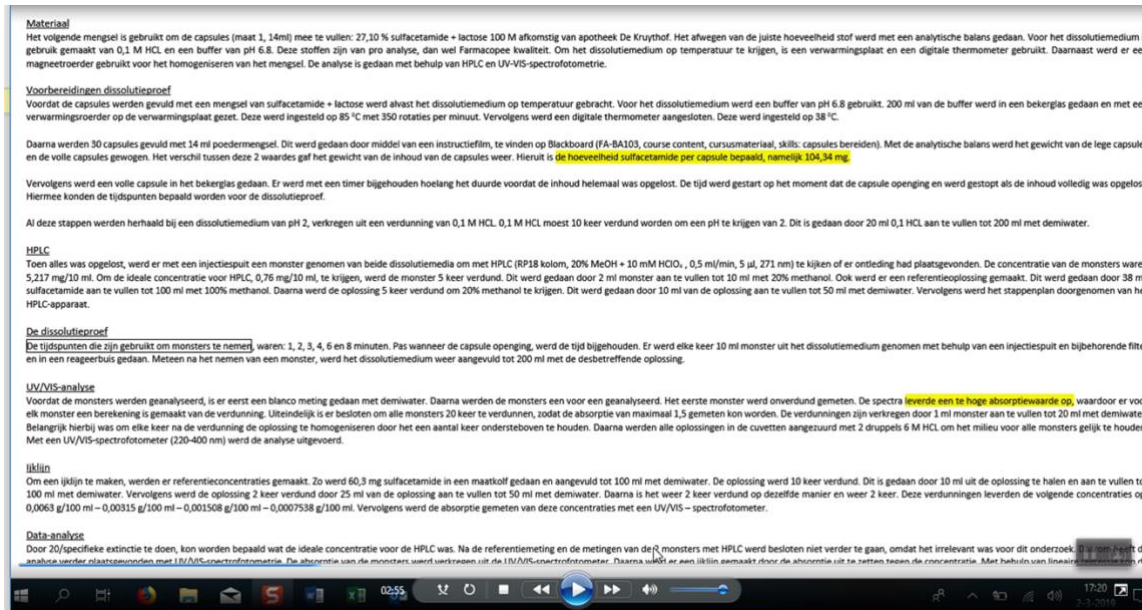


Figure 2. Screenshot of a feedback video.

Written feedback was provided as point-by-point comments beneath the filled rubric (see Figure 3). Teachers agreed that written feedback should contain 3-5 feedback items and should refer to components of the rubric. A box was included for positive comments and one for suggestions for improvement. There were no constraints in maximum or minimum number of words in the feedback (i.e., length of the feedback).

	Onvoldoende	Voldoende	Goed
10a. Titel en lay out	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	De titel is onduidelijk en dekt de lading van het onderzoek niet.	De titel is duidelijk en dekt de lading.	De titel is kort en informatief en geeft duidelijk weer waar het verslag over gaat .
10b. Titel en lay out	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	Het verslag ziet er verzorgd uit en is slordig vormgegeven.	Het verslag ziet er netjes uit maar is soms niet eenduidig vormgegeven.	Het verslag ziet er verzorgd uit en heeft een aantrekkelijke en eenduidige vormgeving.
Wat ging goed?			
Alle informatie in het verslag sluit inhoudelijk goed op elkaar aan.			
Wat kan beter?			
De start van de inleiding is niet sterk (in de eerste 3 zinnen komt 2x het woord voorbeeld voor en 2x het woord bijvoorbeeld). Ook relevantie onderzoek ontbreekt hier. Maak 1 grafiek van de resultaten van de dissolutieproef (in een figuur kun je beide lijnen veel beter vergelijken). Laat ook de absolute getallen weg (dit is dubbelop).			

Figure 3. Screenshot of the bottom part of the rubric including the written comments (WP group).

Instruments

Student Semi-Structured Interviews

Semi-structured individual interviews were carried out to investigate students' experience and understanding of the feedback. The interviews were confidential and were conducted by an experienced interviewer. The interviews took place at the university within 5 weeks after students received their grade and feedback. All students who agreed to participate in the interview (n=9) signed an informed consent. Students received a reward of 10 euro for participating in the interview. The individual student interviews were divided into two parts (experience and understanding) and took 45-60 minutes.

An interview schedule was developed in advance (see appendix A for the complete interview schedule). The first part of the interview focused on students' experience and included questions on the use of the feedback (procedural steps), quality of the video, and perception of the feedback. The second part of the interview focused on the student's understanding of the feedback. During the second part of the interview, participants were given a copy their coursework, filled rubric, and the written feedback or screencast to refer to. Participants from the SP and SF groups watched the screencast feedback video during the interview. After each feedback item, the video was stopped, and the meaning and interpretation of the respective feedback was discussed. The discussion of each feedback item included i) an explanation of the feedback in their own words, ii) pointing out a specific adaptation in the report, and iii) a delineation of how they would use the feedback in future assignments.

Transcriptions were made from the audio recordings of the interviews and used for data analysis.

Teachers Focus Group

A focus group with four teachers was conducted in order to investigate teachers' experiences in providing screencast feedback. The focus group took 60 minutes and allowed in-depth discussion. The focus group took place at the university within 3 weeks after students received their feedback and grade and was conducted by an experienced interviewer.

An interview schedule was developed in advance and included questions on the procedural approach of giving feedback and the experience with recording the feedback videos (see appendix A for the complete interview schedule).

Transcriptions were made from the audio recordings and used for data analysis.

Data Analysis

This study uses a mixed methodology approach in which quantitative analysis of understanding is combined with qualitative analysis of experience from the interview and focus group data.

Students' Experience

The data obtained from the first part of the student interviews were first categorized through open coding (Boeije, 2005). The interview themes were used as initial codes and were

supplemented by themes that emerged from the data. Three raters analysed the first two interviews by identifying units of relevant meaning within each interview, and these were then clustered to identify categories (axial and selective coding [Boeije, 2005]). The resulting coding scheme was then applied by two raters who independently analysed the remaining interviews using the NVivo software package. The process of analysis was validated through discussion of the analysis until all raters agreed.

Students' Understanding

The data from the second part of the student interviews were used to quantify the understanding of students. Understanding on each feedback item was scored by two researchers independently. The process of scoring was validated through discussion of the analysis until both raters agreed.

Scores for each feedback item were given on three elements corresponding to three characteristics of effective feedback: explaining in one's own words (How am I going?/feed back), translation to an adaptation in the report (Where am I going?/feed up), and translation to future assignments (Where to next?/feed forward) (Hattie & Timperley, 2007). Score 1 was given if the respective element was incorrectly explained by the student, score 2 if it was partly correct, and score 3 if it was correct. No score (NS) was given if the respective element wasn't discussed in the interview. Hence, the number of scores given varied for each student and depended on i) the number of feedback items discussed and ii) if a certain element (explaining in own words, translation to adaptation in report, translation to adaptation in future assignment) was discussed.

We added up data from all feedback items for each research group and each element. Then we calculated the relative frequency of each score (number of times a score [1,2 or 3] was given/total number of scores given) for each research group (SF, SP, WP) and for each feedback element. An example: Imagine that two students (A and B) were interviewed for the SF-group. Student A received feedback on three items and student B received feedback on two items, then the total number of items is five. For the element explaining in own words, student A received a score of 2 twice and a score of 3 once, and student B received a score of 1 once and a score of 3 once. So, both students received one time a score of 3. The relative frequency of score 3 for explaining in own words for the SF group is then $2/5 * 100\% = 40\%$. Hence, the relative frequency reflects how often a certain score was given for a specific feedback element in a specific research group.

Teachers' Experience

The focus group data were analysed by the three researchers. All teachers' approaches to working with screencasts, their beliefs about this approach, and positive and negative experiences were individually summarized per teacher. Afterwards, the most important themes and patterns were identified collaboratively based on similarities and differences between teachers. The process of this descriptive analysis was validated through discussion of the important themes by the three researchers.

Results

Students' Experience

Thematic analysis of the interview transcripts revealed five major themes that reflect the main differences between students' experience between written and screencast feedback: strategy for reviewing the feedback, feedback preference, feedback quality, modality, and personal feeling. We describe our main findings according to these themes.

Strategy for Reviewing the Feedback

Students in the WP group viewed the filled rubric and the comments directly (n=1) or 3 days after the feedback was provided (n=1).

All students from the screencast groups (SP and SF) watched the video as soon as possible after receiving the feedback, which meant that some students waited until they were home or at least in a quiet environment. Strategies for watching the screencast feedback differed; some students watched the video more than once (n=2), some paused the video (n=3) or made notes during the video (n=1). Almost all students (n=6) from the screencast groups indicated they used headphones while watching the video.

Feedback Preference

Students from the SP group requested screencast feedback in advance; students from WP group and SF group did not. When we asked students from the SP group why they requested screencast feedback, they indicated that they thought that, based on the provided example or the previous experience, the detailed explanation of the rubric scores, including examples from the report, would be valuable. Specifically, some students (n=3) requested screencast feedback because this was the first time they had to write a research report:

"When I look at the rubric, I don't see a real explanation, so then you have to figure out yourself what to improve. But I have never written a research report before, so I don't know it either. So that's why I requested the video feedback, because I thought: I have never written it before, so how do I know how to do it differently?"

Students from the WP and SF group acknowledged the more detailed feedback via screencast based on previous experience but stated that they didn't request screencast feedback because they thought they wouldn't need the extra explanation and if they would, they could ask the teacher afterwards.

To see if their opinion had changed, we asked the students from all three groups if they would request screencast the next time. Almost all students (n=8) answered positive to this question; one student wasn't sure because she could just as easily ask the teacher for additional explanation (WP group). Two other students (one from SP group and one from SF group) also suggested that additional explanation could also be provided in another way.

"Well, it depends. If there is more information in the screencast than on paper, then I would say screencast. But if the same information is on paper, then I would, visually oriented as I am, also be fine with feedback on paper. Initially, of course, I would go for the option that will provide the most information."

Quality of the Feedback

When students were asked for their opinion on the received feedback, one student from the WP group was positive about the written feedback. Positive aspects mentioned about the written feedback all refer to the quality of the feedback. More specifically, students from the WP group appreciated that the rubric contained information about their performance on multiple criteria.

“[...] I like that it is not just insufficient, sufficient and good, but that it’s combined with a sort of explanation. And I also think that it is good to receive feedback, otherwise, if they just give you a grade, you will never know what to improve to receive a better grade.”

However, the other student from the WP group indicated that the written feedback was not clear enough to her, she still had questions about the feedback, and she wished she had requested screencast feedback:

“[...] sometimes you don’t really know what it refers to. Because you wonder, for example Dutch language, if that means just the use of capitals, or well, I don’t know.”

Conversely, all students that received screencast feedback (SP and SF group) indicated that they experienced the feedback as positive, specifically because of the quality of the feedback. They mentioned the feedback was detailed and easy to understand because scores in the rubric were explained (n=5), examples were pointed out in the report (n=4), and suggestions for improvement were described (n=4).

“That I receive an explanation on why I scored insufficient or good. And the teacher is really telling you and giving options. Not just “that doesn’t belong there”, but also what you could have done differently. That makes me realize “oh, I could have done it like that.” And that’s really educational.”

Although students from the screencast groups were positive about the quality of feedback, the number of feedback items discussed in the video was considered as a disadvantage by students (n=3). Students pointed out that the amount of feedback didn’t reflect their grade, that they preferred to have had the complete package of feedback, and that they question whether the feedback provides enough information to be able to improve their grade.

“She explained two main items but that makes me wonder if these two things were enough to transfer my 5 into for example a 9.”

It should be mentioned, though, that three teachers discussed more feedback items than was agreed upon. Those students didn’t refer to this aspect as being negative; they were satisfied with the amount of feedback discussed.

Modality

Several students (n=3) specifically valued the multimodality of screencast feedback. They point out that the combination of listening to and watching increases the attention and helps to memorize the feedback.

“When you read it, at least that’s how it works for me, I often think: yes, I guess so. Whereas when you hear it, then it is just, different. I don’t know, I can’t really explain, but you absorb it better when you see and hear it than when you just see it in the rubric. Maybe it has something to do with attention.”

However, some drawbacks referring to the feedback method were also mentioned by students from the screencast groups. First of all, some technical issues were expressed by the students. Three students indicated that they had difficulty finding the link to the video, two students mentioned that the sound was a bit soft, but the most important technical issue that was that watching the video requires a quiet environment or headphones.

Personal Feeling

The relational aspect of screencast feedback was mentioned by students (n=4) as an advantage. Students feel the video is more personal than reading comments because the teacher talks to them.

“Well, you take it more seriously than when just a text was sent to you so impersonally. That you then read: This and this you did wrong. I think you listen to it more carefully because someone recorded it for you and says it to you.”

Table 3 summarizes the thematic findings in terms of positive and negative aspects of experiences with screencast feedback.

Table 3. Summary of positive and negative experiences with screencast feedback of students and teachers

	Students	Teachers
Positive	+ specific and detailed feedback + understanding of the feedback + multimodality + personal feeling	+ specific and detailed feedback + clear procedure and user-friendly + software
Negative	- number of feedback items discussed - technical issues - watching requires using headphones	- number of feedback items discussed - recording requires a quiet environment - extra workload compared to filled rubric - uncomfortable and awkward feeling about the video

Students’ Understanding

The total number of scores given and the mean scores for the three elements in each research group are shown in Table 4. Mean scores on understanding were all 2 or above, except for the average score on translation to future assignments of the WP group ($1,71 \pm 0,49$).

Table 4. Mean scores and total number of scores given for explaining the feedback in one's own words (feed back), translation of the feedback to an adaptation in the report (feed up), and translation of the feedback to future assignments (feed forward). SP = screencast pass, SF = screencast fail, WP = written pass. Score 1 = incorrect, score 2 = partly correct, score 3 = correct.

		SP	SF	WP
Explain in own words (feed back)	Mean score	2,65 ± 0,49	2,63 ± 0,52	2,00 ± 0,53
	Total nr of scores	17	8	8
Translate feedback in adaptation in report (feed up)	Mean score	2,64 ± 0,63	2,86 ± 0,38	2,33 ± 0,52
	Total nr of scores	14	7	6
Translate feedback to future assignments (feed forward)	Mean score	2,33 ± 0,65	2,14 ± 0,69	1,71 ± 0,49
	Total nr of scores	12	7	7

The relative frequencies of the scores given on the three elements for each of the research groups are shown in Figure 3. In all groups, lower scores were given for translating the feedback to future assignments than for explaining in own words or translating the feedback in adaptation. In all groups score 2 was given most for translating to future assignments (50% in SP group, 57% in SF group, and 71% in WP group). However, for the elements explaining in own words and translating to adaptation in report, score 3 was given most in both screencast groups (SP group: respectively, 65% and 71%; SF group: respectively, 63% and 86%), while score 2 was given most in the WP group (respectively, 75% and 67%).

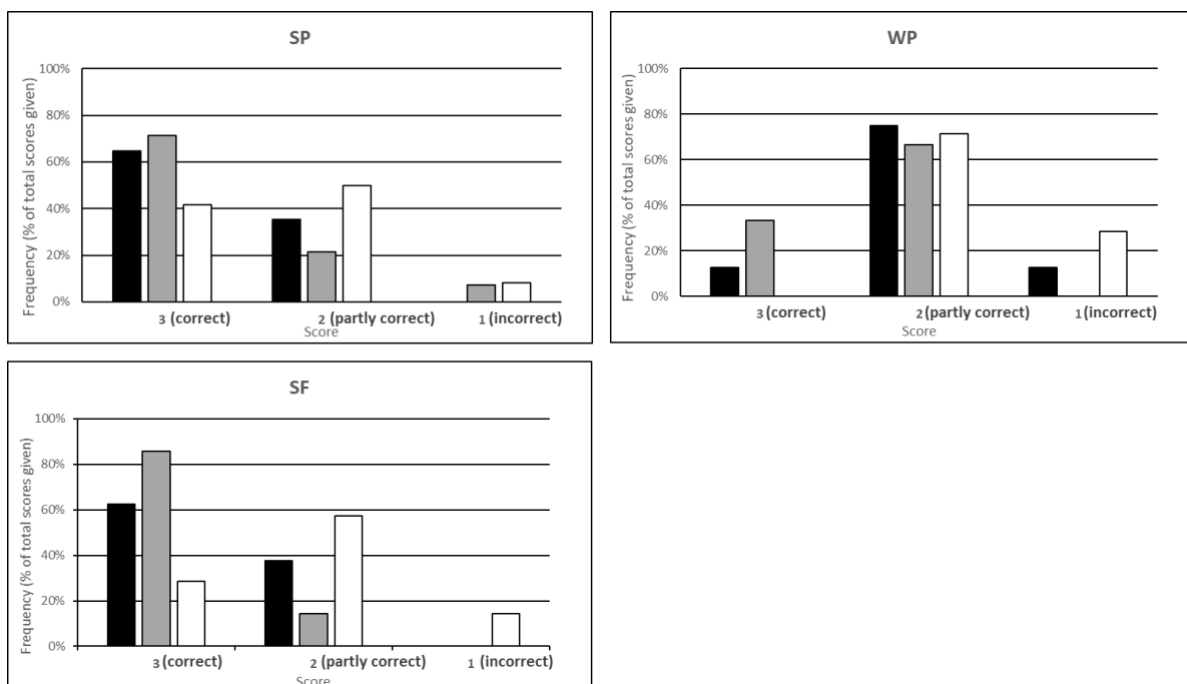


Figure 3. Relative frequencies (% of total scores given) of scores given for explaining the feedback in one's own words (A, black bars), translation of the feedback to an adaptation in the report (B, grey bars), and translation of the feedback to future assignments (C, white bars). SP = screencast pass; SF = screencast fail; WP = written pass.

Teachers' Experience

Thematic analysis of the interview transcript revealed similarities and differences between teachers that will be summarized according to the major themes used for analysis: approach to recording screencast feedback, positive experiences, negative experiences, and beliefs about feedback approach in general.

Approach

Despite the clear agreements that were made in terms on length of the video and the number of feedback items to discuss, large differences were found between teachers in the approach to providing feedback. For example, teacher D appeared to have recorded screencasts of almost 10 minutes in which more than 5 feedback items were discussed, while teacher C strictly adhered to the agreement of discussing a maximum of three feedback items and a maximum length of 5 minutes.

All teachers indicated that they recorded the screencast when they were alone, either in their office or at home. Also, they indicated that they had to figure out the procedure, but when known, it was relatively easy to execute.

Positive Experiences

Some positive aspects of screencast feedback were mentioned. Teachers indicated that they felt well prepared to carry out the procedure (teacher A, B, C and D) and that the selected software program (SnagIT) was user-friendly (teacher C and D).

Also, two teachers (C and D) positively referred to the quality of their own feedback. They pointed out that the feedback was more detailed and more specific compared to written feedback.

Teacher C: "Well, I have something in my mind that I want to pass on to the student. And I cannot write that down in a box. But I liked it that I could take the student with me in my story by telling it."

Negative Experiences

In general, far more negative than positive aspects were mentioned in the interview. The most pronounced negative aspect about screencast feedback that was stressed by all teachers was the extra workload of recording a feedback screencast. The main reason for this was the extra time it cost to record and upload a screencast video as compared to writing comments beneath the rubric.

"Teacher A: If it is much or just a few points, it costs more time anyhow. Because everything outside the assessment form, filling in the rubric and the comment section just takes extra time."

Yes, because you already have to do that. The rubric needs to be filled in and closed. And everything that adds to that, if it is 1, 2 or 3 minutes, that doesn't matter, it is all just extra time."

Another negative aspect that came forward, and was mentioned by all teachers, was that recording required a quiet environment and was often done outside office hours or at home. Some teachers also raised this point as a reason for experiencing extra workload.

The number of feedback items discussed in the video was not only considered as a disadvantage by students, but also teachers (B, C and D) referred to the agreement of a maximum number of feedback items as a downside.

Teacher C: "[...] while, if I make a screencast, well, then I have to pick two negative feedback items, two points of improvement. And then I have to figure out, I think you already mentioned this, what I think is most important. And that's what I discuss then. And then I also think, a lot of things are missing that I would also like to share. While when I write it, I can share all feedback items, but in that case, I cannot explain them clearly."

Teachers seem to prefer to be rather complete in the number of feedback items (quantity) than in their explanation of a single feedback item (quality). Two teachers (D and B) even indicated that, because they wanted to be complete, they discussed more feedback items than was agreed upon in both written feedback as well as screencast feedback.

The last drawback that was mentioned by three teachers (A, C and D) was that it felt uncomfortable and awkward to watch the video and hear themselves talking. It made them doubt whether to share the video with the student, and one of the teachers (A) eventually decided not to share it for this reason.

Teacher A: "I am not that into recording and mainly because, when I hear my own voice, I think: Uh, you know, don't send it. That's what I experience. Yes, I am not so easy when it comes to sharing pictures and stuff."

Beliefs about Feedback Approach

During the focus group discussion, teachers explained why they were not in favor of screencast feedback and/or why they didn't use the approach that was agreed upon. There appeared to be a huge discrepancy between teachers in beliefs about *effective* feedback and therefore also in which approach they used, and with which approach they compared screencast feedback. This was already demonstrated by the fact that teachers discussed more feedback items than was agreed upon because they preferred to be complete in the number of feedback items. To further illustrate the impact of teacher's beliefs about effective feedback, we include two quotes from different teachers on this subject.

Teacher B: "My approach of giving feedback, and that maybe different from others, is that I read such a report and I use 'track changes' for my comments. And I put everything in the margin with examples and what I think about it. And sometimes also, for example, how you could change it with a suggestion like how you could do it next time. These are all things you could also say in a screencast, only I go through the report from the beginning until the end and fill it with all my feedback. And I notice that if I record a screencast, I just pick out three points from that, I can literally read out what I wrote down in the margin. This makes me

think that it didn't make the student wiser. But I wouldn't know what to add because I have already given everything. And personally, I rather give extensive feedback like I do in the margin than limited to giving 2 or 3 comments in 2 minutes."

Teacher A: "I can tell my story just fine in the box. And I also don't think we should spell everything out what they should do with examples, I think that goes too far. I rather broadly indicate what the most important things are, I can write that down just fine. I can depict my words fine there. And yes, I also like to see what a student recognizes and what not. And I think that, based on the rubric and explanation underneath it, they can recognize the shortcomings in the report just fine. And what they don't recognize, yes, that's what I am willing to discuss further."

The above cited teachers were the most reluctant about the screencast feedback and didn't have any positive remarks about the feedback approach. They clearly indicated a preference for written feedback over screencast feedback, although the reasons for this preference differed. Teachers C and D saw some advantages of screencast feedback but didn't necessarily prefer it. They indicated that the preferred feedback approach should also depend on the student's perspective of effectiveness.

Despite the fact that teachers were in general not positive about the screencast feedback approach used in this study, teachers B, C, and D indicated that they would be open to using screencast feedback in the future if it would be applied differently, i.e., if it would be applied in greater accordance to their own beliefs about effective feedback and would cost less workload.

Teacher B: "[...] if I would want to make a screencast, I would personally make a summarizing screencast of the most frequent mistakes after I saw all the reports. Because you see that 80% basically makes the same mistakes. And then you can just make a sort of lecture of it, from which you really learn something, instead of all those separate remarks."

Discussion

This study explored students' and teachers' experiences with, and student understanding of screencast feedback on a writing assignment.

Students were mainly positive about screencast feedback. Especially the feedback quality, multimodality, and personal feeling were valued. These findings are in line with student experiences in previous research (Henderson & Phillips, 2015; Mathisen, 2012; Mayhew, 2017). Screencasts provided detailed and specific feedback, which was acknowledged and appreciated by the students. Seeing the report on the screen while hearing the teacher explain the feedback appeared to make it relatively easy to process the feedback. Furthermore, hearing the teacher addressing the individual student in the screencast was perceived as personal and contributed to students' engagement with the feedback. Students' engagement with feedback is one of the aspects promoting proactive recipience of feedback (Winstone et al., 2017).

Remarkably, while students appreciated the profound feedback in the screencast, they also felt that the feedback was not always complete and that they would have preferred all feedback points to be addressed.

The effect of screencast feedback in terms of improved achievement has been studied by Ali (2016), who found that students who received screencast feedback on a first version outperformed students who received written feedback on this first version of their assignment. Still, students' understanding of received feedback is also important to investigate, because good understanding is a condition for students to implement received feedback. This study asked students to verbalize their understanding of the feedback. Both students who received written feedback and students who received screencast feedback showed a satisfying or good understanding of their received feedback in terms of feed up, feed back, and feed forward. A difference was found in terms of ability to explain the feedback in own words and to describe adaptations in the report, where the written feedback group mainly showed partial understanding and the screencast group mainly showed full understanding.

Explanations for the good understanding of screencast feedback may be found in students' positive experiences with this type of feedback. The screencast feedback was perceived as detailed. In a feedback video the teacher showed the part of the report that the feedback applied to and explained based on this particular example what could have been done better. As feedback related to specific tasks is one of the characteristics that makes it effective for learning (Hattie & Timperley, 2007), it seems logical that students understood screencast feedback very well. Our study also showed that the multimodal aspect of screencast feedback (seeing and hearing) positively affected students' attention. This may have helped students in processing and thereby understanding the feedback. Furthermore, the personal attention students experienced with screencast feedback may have contributed to their understanding of the feedback. The feeling of being addressed personally may have affected students' engagement with the feedback, stimulating them to be more involved in processing the feedback. Tailored feedback has been found to increase engagement and motivation (Winstone et al., 2017).

The most difficult part for all groups of students in this study was translation of the feedback to future assignments. It is known that feedback on a task level is hard to transfer to other assignments (Hattie & Timperley, 2007). Suggestions as to why this was the case in the present study might be found in the educational context and students' skills. The feedback was provided on the final version of the assignment of a course. The modular structure of the bachelor's program at Utrecht University may cause students to not look further than this one course and not apply feedback on a specific assignment to another assignment in another course (Winstone et al., 2017).

Whereas students were mostly positive about the screencast feedback, teachers' experiences were less positive. Although teachers felt well-prepared and experienced the software as user-friendly, they perceived the workload to be high, which was aggravated by the need to record the screencast in a quiet environment and therefore sometimes after working hours. Also, some teachers felt uncomfortable recording themselves. Finally, teachers, just like students, preferred feedback on all aspects for improvement rather than the smaller number of aspects addressed in more detail in the screencast.

A factor that has possibly influenced teachers' experiences with the feedback procedure in the present study is their *beliefs* about feedback. Beliefs about teaching are very important for teachers' practice (Lee, 2009). If one's beliefs do not match with what is being asked, this is likely to negatively affect one's perception of it. One of the 10 mismatches Lee (2009, p. 15) identified between teachers' written feedback beliefs and practices was that "Teachers mark errors comprehensively although selective marking is preferred." We noticed this among the

teachers involved in the present study. Some teachers found it difficult to limit the screencast to the few most important feedback points. Additionally, there were different beliefs about the type of feedback comments that would be useful for students, e.g., the level of detail of suggestions provided. Despite careful agreements about the feedback made in advance, differences in the approach in terms of length of the video, amount of feedback points, and focus on suggestions for improvement were found. From the focus group with teachers, the reason for these differences also seems to lie in different beliefs and personal preferences in providing feedback in general. For teachers to become more positive about screencasts, the way of giving feedback should connect to personal beliefs about effective feedback.

Limitations and Suggestions for Future Research

This study describes experiences with and understanding of both written and screencast feedback. We could not directly compare the two approaches because the written feedback was not only different in method, but also different in form (less detailed, more general comments). For a good comparison of understanding of screencast versus written feedback, a more detailed and specific type of written feedback, such as comments in the margins of a document, should be included in future studies. Additionally, the comparison groups should be larger. Students in the present study received screencast feedback on request and few students asked for screencast feedback. A possible explanation may lie in the timing of the feedback at the end of the final assignment. This timing may have caused the idea that students would not use the feedback anymore because the assignment was handed in and graded already. Alternatively, teachers' attitudes towards screencast feedback may have influenced students' tendency to request screencast feedback. Since most teachers were rather negative about screencast feedback, this may have reduced the number of requests. Students who did request screencast feedback may have been positive about this type of feedback beforehand, influencing their perception of the feedback they received. Nevertheless, students in the SF group were also positive about the screencast feedback, while they did not necessarily request screencast feedback. For a comparative study, the allocation procedure of screencast or written feedback should be more objective.

One of the assumptions of providing feedback through screencasts was that it would be effective and efficient for both students and teachers. Nonetheless, teachers experienced an increased workload as compared to the standard written procedure with just a few comments. The comparison made in this study is not completely fair because the screencast feedback method was less efficient than the written feedback method but was also far more detailed. Therefore, in order to decide whether screencast feedback is indeed more time-consuming than written feedback, the feedback procedures in the comparison should be equal.

This study defined students' understanding of feedback in terms of the way students explained the feedback they had received. Basically, these explanations were coded on the extent to which they showed understanding. With this direct way of defining understanding, we received an indication that students indeed understood the feedback they received. Additionally, in future research it would be interesting to supplement this method with an investigation whether screencast feedback affects student performance differently from written feedback. The goal of feedback is that students learn as much as possible through understanding, and by including their performance on assignments in a study, the learning result can be made visible.

Conclusion

This study showed that students valued screencast feedback and that their understanding of screencast feedback seemed to be good. At the same time teachers experienced screencast feedback as time-consuming, and it did not always fit their beliefs of effective feedback. Providing and receiving feedback is a complex part of education, involving various perspectives and beliefs about effective feedback of both students and teachers. Therefore, it is hard to choose one method of feedback that fits everyone. However, in all situations, quality of feedback is more important than the method through which the feedback is provided. Screencasts facilitate giving effective feedback through the possibility for specific and personalized feedback. The way in which it is best applied depends on contextual and personal conditions.

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Appendix A - Interview Schedules

Student interviews

PART 1- experience

1. Why did /didn't you choose feedback via screencast?
2. Strategy
 - a. When did you read or watched the feedback?
 - b. Where did you read or watched the feedback?
 - c. What was your approach in reading or watching the feedback?
3. What do you find positive about the type of feedback you received?
 - a. Can you explain why you consider this as positive?
 - b. Can you give an example?
4. What is not so positive about the type of feedback you received?
 - a. Can you explain why you consider this as not so positive?
 - b. Can you give an example?

Q5 and 6 when not discussed before:

5. What do you think about the technical quality of the video?
6. What do you think about the quality of the content of the feedback?
 - a. Was the feedback linked to the rubric?
 - b. Did the feedback contain examples?
 - c. Did you receive suggestions for improvement?
7. Do you think the feedback and grade correspond with each other?
8. Is there anything you missed in the feedback? And if yes, what then?
9. Would you prefer screencast feedback next time? And can you explain why?

PART 2- understanding

- A. Students watches or reads a feedback item
- B. Questions are asked after reading or watching each feedback item

Questions

1. Do you understand the feedback?
2. Could you explain the feedback in your own words?
3. Does the feedback help you understand the score you received in the rubric?
4. Based on this feedback, what would you adapt in the report? How would you do this?
5. Could you point out (another) example in the report that you would adapt based on the feedback?
6. How would you apply this feedback in future reports?
7. Are there things you don't understand? Which questions do you have about the feedback?
8. Do you agree with the feedback? Do you think the report would improve when you implement the adaptation?
9. Do you think you better understand the feedback now than before the interview? And why?

Teacher interview

A. Strategy

1. How many screencasts did you record?
2. Where and how did you record the screencasts?
3. Did you encounter any technical problems with recording and if yes, what problems?
4. How user-friendly was the screencast tool?
5. How well prepared did you feel for recording screencast feedback?

B. Experience

1. How did you experience giving and recording screencast feedback?
2. What was positive about recording screencast feedback?
3. What was not so positive about recording screencast feedback?
4. What is your opinion on the quality of the feedback you provided via screencasts?
5. How do you think students experienced it?
6. If you could choose, what method of giving feedback would you prefer? Why?