Digital Video Feedback and Labs – The Students Like It, Why Don't You?

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I conducted a mini-workshop with the intent of demonstrating the merits of digital video feedback over traditional hand-written or text-based methods of assessment, for example, of lab reports, research proposals, and/or oral presentations. Using a session that I developed for science high school teachers-in-training at the University of Ottawa, participants of this workshop learned about digital audio-video (AV) feedback. In my students' opinions (supported by post-hoc interviews) AV feedback is superior in both quality and quantity to traditional hand-written or typed feedback. Using a free software (Screencast-o-matic[tm]) suite that creates non-searchable and secure content, students can view and review their assessments with their personal devices at any time so long as they have an internet connection. Finally, although I recommend it as an assessment strategy for educators, participants in this workshop also recommended it as an option for peer-assessment.

Keywords: science, audio-video feedback, summative assessment, formative assessment, undergraduate

Introduction

As educators, we recognize that feedback is a key component in the learning process. We recognize also that poor feedback (e.g. unclear, illegible, late, perceived as unfair or irrelevant, and inconsistently assessed) may disengage the students from their learning (Mutch, 2003). Consequently, preparing and delivering helpful comments (or meaningful feedback) in a timely fashion is always a challenge.

The Problem

The problem is finding a method that is effective at communicating your constructive comments but that is also an efficient use of everyone's time as well. Especially for larger courses with hundreds even thousands of students, writing or typing comments on each report or assignment can be impractical. If not done properly, students will seek clarification by either digital correspondence or in-person visits (e.g. during office hours). Not surprisingly, rubrics and checklists are often the assessment tool of choice as they represent a good compromise between the simple summative grade and providing descriptive (formative) comments. Even then, rubrics and checklists may not be descriptive enough or understood in a way that is meaningful for student learning. On this last point, students may not see the connections between the assessment of the assignment and the learning outcomes of the course; they will not see the Big Picture and feel that the assessment criteria are arbitrary. Here I describe a better way that addresses shortcomings with text-based and even rubric-based assessments.

Talk to Your Students

It is obvious that one great way to deliver meaningful feedback is one-on-one. This may include arranging office hours for individual or even group feedback. I doubt any one can deny that talking face-to-face can be a more effective way at communicating a better quality and quantity of constructive feedback than can be typed or written in the same amount of time. Moreover, in-person encounters offer nonverbal messages such as facial expressions and body postures that can reinforce what is said in words. Students are more receptive if they can relate to their assessor and see (not just read) that they care about their learning (Henderson & Philips, 2015). Finally, students are more likely to accept your feedback if you can also explain how it connects to the desired learning outcomes of the assignment (and the course) as well as the assessment criteria). Once assessment becomes transparent and its rationale accountable to the assignment and course design, buy-in and learning are likely to improve (Boud, 2000; Biggs, 2003; Gibbs & Simpson, 2004). This being said, in-person encounters can be impractical (e.g.

scheduling conflicts or lack of privacy) or over-whelming (e.g. quantity of feedback delivered). The challenge is to find another strategy that offers the same benefits of face-to-face meetings but in a format that is (re-)accessible anytime, private, and manageable in delivery.

The Next Best Thing – AV Feedback

In this brief report, I argue that AV feedback is a good surrogate to one-on-one visits. In my case, I used an online software (free-of-charge for the basic version but upgradeable at a reasonable cost) known as Screencast-o-matic[tm] to prepare online videos that included screen- and face-capture technology. Undergraduate science students in relatively small science lab and lecture courses (up to 70 students per course) could observe what I was doing as I assessed their submissions, tracing my specific comments to defined areas in their work. With this software, I created 5 to 10 minute videos in which I described my role and my opinions on a given assignment historically marked only with a rubric. I made sure to connect the assessment criteria from my rubric with the students' work as well as provide clear justification for my final assessment. My hope was that the students would learn from their mistakes and no longer feel compelled to visit my office for clarification. As it turned out, no student provided AV feedback visited my office seeking clarification or to complain. Post-hoc analysis based on interviews with over a dozen students revealed that students were completely satisfied with my explanations if not the grade. Moreover, all (100%) subsequent assignments reflected some level of integration of my comments. This being said, in-person encounters can be impractical (e.g. scheduling conflicts or lack of privacy) or over-whelming (e.g. quantity of feedback delivered). The challenge is to find another strategy that offers the same benefits of face-to-face meetings but in a format that is (re-)accessible anytime, private, and manageable in delivery. As impressive as this sounds, like any tool, its usefulness and effectiveness is only as good as its design and application. Also, there are certain assumptions (socio-economic, language, cultural, etc.) that are not discussed in detail here but must be factored in the decision-making, planning, and distribution processes. My experiences and school environment, notably at a culturally-diverse, technologically-advanced, large state university, may not reflect your circumstances. In my case, all of my students owned portable technology or had access to an internet-connectable device to see my AV feedback. The following section provides some useful guidelines but I encourage the reader to consult the wider literature on this strategy of assessment for learning.

Student Outline
For the Assessor: Teacher, TA, or Student

Objectives

    Using AV feedback in an appropriate fashion: The Do's and Don'ts

Methods

Part A: Selecting the (Right) Software

    In this paper, I recommend using a purpose-built online software to provide dynamic screen-, voice-, and video-capture feedback for various assignments. The software I ended up using, namely Screencast-o-matic[tm] (SOM), provides the user various options including the ability to upload a copy of their video feedback on the SOM's secured server or to download a copy to the assessor's digital device as a video (.mp4 file). This can then be sent via e-mail to the student as an attachment. I prefer, however, to use the URL-based video option because my recordings are easily shareable with and viewable by the student using his or her own portable digital device and an internet connection. Moreover, the URL on SOM's server can be rendered "non-searchable" so unless the student shares the link, no one else can find it and watch it. Now, anyone planning to create AV feedback with this kind of online software for the first time will have to create an account and, depending on their needs and wants, they may have to upgrade (at added cost). Fortunately, I find SOM to be quite user-friendly with an intuitive layout and at an affordable price. Moreover, the company provides many helpful resources (video tutorials and help forum) to accomplish your specific goals. This software is also widely used as a platform to make digital lectures for online and hybrid courses.

    N.B.: In the USA, the Family Educational Rights and Privacy Act (FERPA) may not allow this type of distribution using an outside server. Consequently, the other option is to provide to the student a downloaded copy of the video (.mp4 file) generated through an application like SOM. Unfortunately, these videos may be too large to distribute easily to the students; attached files sent by e-mail have size limits and make take a long time to download especially if the person has limited bandwidth. As it turns out, many LMS', like Canvas[tm], Brightspace[tm], and BlackBoard[tm], incorporate their own video generation applications but, at the time of this publication, none were as versatile as Screencast-o-matic[tm] in functionality and user-friendliness.

Part B: The Do's and Don'ts

    Here are some of the recommendations (in no particular order) based on my experiences that may explain why my students appreciated and followed my AV digital feedback:

i)   **Good for formative and summative feedback**. Determine if, when, and where formative feedback is needed and consider this as an option. AV feedback may also help provide details justifying a summative grade.

ii)   **Hiding your face**. This is optional but my experience is that students like to see what you are doing. There is something to be said about watching someone's demeanor that students seem to appreciate. That being said, some educators have expressed to me their reservations with showing their face (e.g. the video could be satirized on the internet). If so, your voice can convey additional emotional signals over text alone without having to show your face or body language.

iii)   **Preface every assessment with a disclaimer that sets the context.** By way of an example, I provided AV feedback on a rough draft of a project proposal. Before I delved into the specific issues, I outlined my role as the educator and assessor and why I was giving this feedback (e.g. to help teach task-related concepts). In addition, I emphasized that I was not going to point out every specific issue (e.g. every spelling error). It was the student's obligation to make the changes themselves, not for me to make it for them. This is important as it still puts the power and responsibility for revisions in the students' hands and avoids any future complaints from the student where I failed to point out a specific error in my video. Your rubric ideally focuses on themes (the domains) so stick with the themes but justify your level of performance per theme with some specific examples from the student's submission.

iv)   **Connect your comments to the assessment tool and to the course learning outcomes.** By way of example, if the rubric included a domain regarding spelling and grammar, I would connect some samples of the student's misspelling of words or grammatical errors to the appropriate level in the assessment tool. I would do this for every domain assessed in the rubric (e.g. content, analysis, etc.). I would also remind how this assignment fits in the course learning outcomes (the Big Picture). Such context is helpful for all concerned as it reminds both the assessor and the assessed about how the assignment fits in with the theme of the course.

v) **Know your audience.** If you do not know your audience, be professional at least. Derogatory or foul-mouth language may be counter-productive. Also, be careful of jokes. Jokes may be a great way to diffuse a sensitive situation but too many of them and you risk downplaying a serious issue, or, appear condescending and dismissive.

vi) **Be in a good mood.** If you are not in a good mood, do NOT assess because your emotional state may come across in your voice or composure and overshadow your message.

vii) **Advice ought to be explicit and constructive.**

viii) **Couch the negative feedback with the positive.** Even for the weakest submissions, try to find and state some positive aspect(s). If it is weak, a one-on-one visit is preferable in any case.

ix) **Give them hope at the end.** Good or bad, make it known that there is room for improvement and that it is achievable if they follow your advice.

x) **Practice makes perfect but be patient.** Like the entertainment industry with actors and directors, there are likely to be more than one "take" when you start recording (and re-recording) your feedback but as you prepare more videos, especially in a series, you will get into a cadence and become more proficient.

xi) **If multiple assessors involved, training is necessary.** So just as with the assessment tools, everybody must be on board with how to use the assessment tool for a given assignment and how to incorporate it into the AV feedback. Go over the list above as well and discuss. Ideally, all instructors should be given an opportunity to practice before implementing in the course.

As you may have already ascertained, many of these recommendations apply to all kinds of feedback, traditional or otherwise.

Optional: Data Analysis

I carried out a qualitative analysis involving interviews of students invited back to my office after course completion in order to ascertain if the students appreciated this assessment strategy. This required ethics approval through my institution and the signing of consent forms. Although I did not plan to go through the specifics here, the overwhelming conclusion based on all the students input was that AV feedback was effective and affective *for* learning. Another measure of success was a comparison of work submitted both before and after feedback delivery; all (100%) assignments submitted demonstrated some level of change based on the AV feedback. Ideally, whether there is one assessor or multiple, there needs to be a way to assess if your use of AV feedback was effective at teaching. One suggestion: Create interconnected assignments where the feedback for one feeds into the preparation of the next.

Discussion

In my experiences, AV feedback was a success; students liked it for its content while I liked it because it was fun to do and saved me time with less visits to my office re-explaining my input. Yet I realize that every approach has its advantages and disadvantages. I invite the reader to consult McCarthy (2015); he carries out an interesting comparison between audio, video, and written feedback at the post-secondary level involving a cohort of 77 students and online surveys (see Table 4 from McCarthy, 2014, for cost and time implications). Around the same time, Henderson and Philips (2015) published their study discussing both the student and teacher impressions of video over traditional text-based methods especially with respect to value and time-efficiency. For those concerned about scalability of these approaches, Broadbent et al. (2017) explored the use of digital audio feedback for a cohort of 1500 students involving multiple assessors. Like me, they argued that digital feedback was more time efficient to produce than written feedback and more useful for learning although they too provide some informative caveats that any early adopter ought to read and respect. In short, one can incorporate digital feedback on various scales if desired but only if properly designed and executed. Below I have added a primer set of relevant literature to get you started (Cann, 2014; Cavanugh & Song, 2014; Lunt & Curran, 2010). Finally, I wish to take another tact at championing AV feedback. Consider the pervasiveness of WiFi-enabled portable technology and the familiarity of today's generation of students with forums like Google[tm] and YouTube[tm] ; over 95% 18 to 34 year olds and nearly 90% among 35 to 49 year olds own a smartphone (Smith, 2017). It is a wonder that so few educators incorporate AV feedback in their curriculum when a sizable percentage own portable devices as well. All of my students when asked were comfortable with the application, noting its similarity to YouTube[tm]. Yet amazingly, I was the first instructor to offer AV feedback, supporting an earlier observation by Chen et al. (2015) about the underutilization of portable technology in learning. As indicated by my students, the software's ease-of-use and round-the-clock accessibility makes it far more convenient than paper hardcopies (which can be misplaced, damaged, wasteful, and take up physical space). We are now well into the 21st century and I think that AV feedback is a natural adaptation to a societal trend towards online interconnectivity and a movement in education towards meaningful feedback. Perhaps we just need to catch up with the times.

Materials

A digital device with Internet access and Screencast-o-matic[tm] (freely available for download from https://screencast-o-matic.com/home/) is required. The digital device will also need a digital camera and microphone for the audio-video component. See Appendix A for a sample photo of SOM in action (Figure 1) and a short-list of other software suites available online for screen and/or video capture (Table 1). Note that this is not a comprehensive list and is based on my own research as well as shared experiences of others, including ABLE members.

Notes for the Early AV Adopter

So as indicated above, I used AV feedback in the context of a small to medium-sized set of lab and seminar-style courses for 3rd and 4th year undergraduate science students. Some participants at this workshop expressed concern about the time requirements, suggesting that AV feedback for a larger course would be too time-consuming. My counterpoint is that the typical individual can say more in 5 minutes than they can type in the same amount of time. I acknowledge however that making videos is a skill that takes time to develop; novices will likely redo several recordings before arriving at a final "presentable" version. Yet as with anything, practice does make perfect. Plus, when one considers time, there is the time spent on preparing the feedback and the time spent explaining it again after the fact. What time may be lost in the beginning with AV preparation is more than compensated by fewer office visits or e-mails dedicated to (re)explaining comments or the assessment rationale. In short, short-term pain for long-term gain.

Another issue of concern was the incorporation of face-capture video. Some of the high school teaching trainees were reluctant to share their images. Screencast-o-matic[tm] does have the option of relying solely on screen-capture if desired. One can also make audio-only files if desired too.

Individuals with heavy accents may also feel uncomfortable with this type of feedback or the students may not be able to understand what was said in the e-feedback. In such circumstances, traditional written feedback may be suitable.

There is also the novelty effect of this approach. Some students stated that it is not a legitimate means of assessment in comparison to text-based methods (McCarthy, 2015) while some educators may find it too different to the point it becomes intimidating. My recommendations are to inform all stakeholders by way of example (workshops) and advising them to consult the literature. With the exception of a few outliers, the majority of users on both end of the teaching-and-learning continuum seem to like it so why don't you?

Cited References

Biggs JB. 2003. Teaching for quality learning at university: What the student does. Maidenhead: Society for Research into Higher Education & Open University Press.

Boud D. 2000. Sustainable assessment: Rethinking assessment for a learning society. Studies in Continuing Education, 22(2), 151-167.

Broadbent J, Panadero E, Boud, D. 2017. Implementing summative assessment with a formative flavour: a case study in a large class. Assessment & Evaluation in Higher Education 1-16.

Cann A. 2014. Engaging Students with Audio Feedback. Bioscience Education 22 (1): 31–41.

Cavanaugh AJ, Song L. 2014 Audio feedback versus written feeback: Instructors' and students' perspectives. MERLOT Journal of Online Learning and Teaching 10 (1): 111-138.

Chen B, Seilhamer R, Bennett L, Bauer S. (2015). Students' mobile learning practices in higher education: A multi-year study. Educause Review, 7.

Gibbs G, Simpson, C. 2004. Conditions under which assessment supports students' learning. Learning and Teaching in Higher Education, 1(1), 3-31.

Henderson M, Phillips M. 2015. Video-based Feedback on Student Assessment: Scarily Personal. Australasian Journal of Educational Technology 31 (1): 51–66.

Lunt T, Curran J. 2010. Are You Listening Please? The Advantages of Electronic Audio Feedback Compared to Written Feedback. Assessment & Evaluation in Higher Education 35 (7): 759–769.

McCarthy, J. 2015. Evaluating Written, Audio and Video Feedback in Higher Education Summative Assessment Tasks. Issues in Educational Research 25 (2): 153–169.

Mutch A. (2003). Exploring the practice of feedback to students. Active Learning in Higher Education, 4(1: 24-38.

Smith, A. 2017. Record shares of Americans now own smartphones, have home broadband. Retrieved from PewResearch.org (August 2017).

Acknowledgments

About the Authors

Alp Oran has been a Lab Course Coordinator and Course Instructor at the University of Ottawa since 2004, I teach small to medium sized lab, lecture, and seminar courses in the 3rd and 4th years of undergraduate biology.
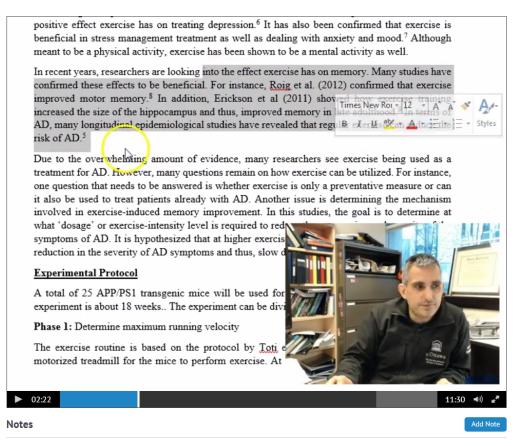
Appendix A

Figure 1. Sample AV Feedback. Using SOM, I point out some discrepancies on a rough draft for a grant proposal in an upper year seminar course. Note that I can highlight and edit digital documents as I record myself allowing the viewer to trace my comments to specific sections. The level of detail covered in this video would have taken me over an hour to write.

Table 1. Sample list of software dedicated for digital AV & screen-capture.

Software	Website	Features
Explaineverything	https://explaineverything.com	Possible to make videos but 30 day trial period then $
Panopto	https://www.panopto.com	Possible to make videos;free trial but then $
Screencastify	https://www.screencastify.com	Screen video recorder for Chrome browser, free version and premium $2/month
Screencast-o-matic	https://www.screencast-o-matic.com	Screen video capture for Apple / Windows; free or upgradable for $
Snagit	ttps://www.techsmith.com/screen-capture.html	Screen capture and recordings; Free trial but then $
TinyTake	https://tinytake.com/	Windows screen capture and video recording; variable $ per year

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