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Improving oral presentations: Inserting subtitles in videos for targeted feedback[1]

Hanna Yang[2] and Lauren F.V. Scharff[3]

Abstract: Instructors are increasingly using videotaping in addition to written summarized feedback to develop oral presentation skills, but reviewing videotapes with students can be a time-consuming process. Moreover, students may find that summarized feedback, which is displaced from the video itself, is vague and unhelpful. This project investigated a new way for instructors to deliver targeted feedback within video recordings, and embedded the new approach within other best practices (e.g. rubrics, guided self-reflection). We compared two groups (N=31) across two presentations, with one group first receiving videotapes that included interjected feedback, much like subtitles, in their videos, while the other group first received raw videotapes and met face-to-face with their instructor to review their performance. Despite the significant student perception that face-to-face feedback was more useful, our results showed that interjected feedback was more helpful for developing students' style skills, and there was no difference in improvement across presentations for content, organization and response to audience. Across both groups, students reported great benefit of video feedback because it provided them with a third-party perspective of their own performance. Furthermore, interjected feedback provided instructors with a substantial time savings compared to the face-to-face meetings.

Keywords: oral presentations, feedback, videotaping, best practices

Providing meaningful feedback to students amidst the challenges of balancing the timeliness of the feedback with the quality of the feedback is a familiar struggle for most educators. This balance is particularly difficult to strike in the context of helping students improve their oral communication skills due to the ephemeral nature of the presentation. To address these challenges, some educators have turned to technology, for example videotaping student presentations. One relatively common way that instructors use video feedback to promote student development is to schedule meetings with students to replay the videotapes and analyze the students' performance together. Unfortunately this can pose an unsustainable burden of time and coordination for both parties, especially the faculty member. Further, technology alone does not provide a complete solution (Amirault & Visser, 2009); it should be embedded within a course design that aids and incentivizes the students to conduct meaningful self-analysis and promote the development of targeted skills. While the few published studies available regarding the use of videotaping oral presentations share positive views of the practice, none share data on the development of oral presentation skills, nor do they address how the use of videotaping fits within a course design that embeds other, known best practices. Thus, the purpose of this project

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[2] Hanna Yang, Department of Law, U.S. Air Force Academy, 2354 Fairchild Drive, Suite 4K25, U.S. Air Force Academy, CO 80840 hanna.yang@us.af.mil

[3] Lauren F.V. Scharff, Director, Scholarship of Teaching and Learning, U.S. Air Force Academy, 2354 Fairchild Drive, Suite 4K25, U.S. Air Force Academy, CO 80840, lauren.scharff@usafa.edu

was to find and assess a way to help instructors provide timely, meaningful, and sustainable feedback to students about their oral communication skills that was also likely to be used by students.

Literature Review

Feedback is a crucial aspect of the learning and development process because it helps target specific deficiencies and strengths, and provides formative guidance for development (for a nice overview of evidence, see Chang et al., 2012). However, most instructors will readily admit that the process of grading and providing meaningful feedback is one of the least desirable aspects of their work. Further, although some students are increasingly demanding more feedback from their instructors (Chang et al., 2012), a large number of students also exhibit behaviors that indicate they do not value feedback, (e.g. failing to collect feedback, quickly glancing at their grades rather than taking time to read the feedback comments). To further complicate the "messages" received by faculty, some students indicate they prefer quality feedback over timeliness, whereas some indicate that they value timeliness over quality feedback (Chang et al., 2012; Winter & Dye, 2004). It was within this mixed context that we approached our goal of oral presentation skill development, using technology as a tool embedded within other best practices.

Oral Presentations—Feedback Challenges and a New Approach. Oral presentations pose several challenges for instructors with respect to their ability to provide meaningful, formative feedback. First, in contrast to written papers, oral presentations operate on a real-time basis, so without video capture, they leave no tangible artifact that students and instructors can review and assess. Second, students may perceive a lack of clarity, reliability, validity, and fairness in the criteria used for assessing oral presentation skills (e.g. Cooper, 2005; Price, Handley, Millar, & O'Donovan, 2010). For example, oral presentation assessments often emphasize content more than command of the oral medium, or command of the oral medium more than content, leading to an imbalanced assessment of oral presentation skills (Cooper, 2005). The uneven focus is likely due to the fact that, without a videotape to allow multiple viewings, it is difficult to pay detailed attention to both aspects (content and style) of the presentation. A third challenge is that the nature of oral presentations does not naturally lend itself to the type of accurate, targeted commenting that instructors often provide in specific parts or margins of papers (McKeachie & Svinicki, 2006), which provides students with subsequent opportunities for guided self-reflection. Studies have shown that feedback needs to be specific to be effective (e.g. Gibbs & Simpson, 2004), but students often feel that instructor feedback is vague, difficult to follow, and not useful (Price et al., 2010). With only summarized feedback provided separately from the oral presentation, it is easy to understand how the perception of vague and confusing feedback could be perpetuated in the context of oral presentation feedback. Finally, a fourth challenge is the issue of timeliness of the feedback. Studies have shown that if students do not receive timely feedback, they will be likely to disregard the feedback they eventually receive, based on the perception that such feedback is now irrelevant (e.g. Gibbs & Simpson, 2004; Winter & Dye, 2004). Our personal experience suggests that the process takes several days, or in some cases, weeks to provide feedback for an entire class. These observations align with those of Kovach (1996) who reported that efforts to capture oral presentations on video and provide instructor feedback require a formidable amount of time, administration, and cost.

The above workload issues might suggest that the drawbacks of videotaping oral presentations overcome the benefits. However, video capture has increasingly been used in many disciplines to provide feedback for improving oral communication skills, for example in medicine (Savoldelli, Naik, Park, Joo, & Hamstra, 2006; Byrne, Sellen, Jones, Aitkenhead, Hussain, Gilder, Smith, & Ribes, 2002) and law (Kovach, 1996; Legal Research and Writing Listserv responses, 2011). However, as we considered our own incorporation of videotaping student oral presentations, we realized that even the above-published "successes" had shortcomings. Simply providing students with videotapes does not provide students the targeted guidance and feedback they need to meaningfully reflect on their videos (Cooper, 2005). Further, although face-to-face feedback enables targeted commenting during the meeting between the instructor and the student, it does not provide a historical artifact of targeted comments for students to review on their own. What if we could give targeted feedback in a manner that also allows students to have a permanent record of their presentation, i.e. interjected video feedback?

Our new approach, interjected video feedback, is textual instructor feedback that is manually inserted into a video at specific timeframes of a student's performance, much like subtitles, thereby enabling a student to replay the video and see which specific moments in his or her presentation that did or did not meet the assessment criteria, as well as the manner by which they did or did not meet the assessment criteria. This is akin to comments interjected in a student's written paper, which allows instructors to pinpoint specific writing issues at the precise points at which they occur, rather than in a global summary at the end of the student's paper. Moreover, interjected video feedback can be replayed by students at their leisure, providing them with multiple opportunities to review and self-assess their oral presentation skills.

We also acknowledge that technology, in and of itself, rarely provides a complete solution. Therefore, we incorporated as many best practices about feedback into this project as possible in order to place our use of interjected videotaped feedback in a context that both supported student learning and skill development, and maintained a manageable instructor workload.

A Framework of Best Practices. The major challenges we hoped to address with our course design and new technique were those of clarity and reliability of assessment, of student use of feedback, and of time and workload. No one best practice addresses all of these challenges, so we incorporated multiple practices: the use of a developmentally-oriented rubric combined with summarized feedback, student assignments requiring review of their videotapes and response to guided self-reflection questions, and more than one oral presentation assignment so that skills could develop. In order to test the impact of the new, targeted, interjected feedback, we randomly assigned half the students to receive it for the first presentation, while the other half received it for the second presentation.

Rubrics have been shown to be a helpful tool for providing timely, yet detailed feedback, as well as explicitly conveying the instructor's expectations to students (Stevens & Levi, 2005; Andrade, 1997). Our rubric was also "developmental" in tone, in order to emphasize the process of learning. Whereas some rubrics evaluate students' demonstration of assignment components, (e.g. "Style" or "Content") using end-state terms, such as "Poor," "Good," or "Excellent," our rubric evaluated students using terms denoting progression, namely by using the following terms: "Not Acceptable," "Beginning," "Intermediate," and "Advanced." Further, along with the rubric performance-level indications, we included several sentences of summarized comments at the end of the rubric feedback form. Such summarized feedback provides more context, explanation, and in-depth insight about the student's performance, and it can help students

understand the connection between their performance and scores on a standardized rubric. Without the benefit of a rubric, summarized feedback may be perceived as unstructured, and therefore, unclear.

Our self-guided student reflections also encouraged students to make links between the rubric dimensions, i.e. instructor expectations, and their performance. As noted above, many students do not deeply process feedback, and thus, they do not use that feedback to shape their future efforts. By building guided self-reflection assignments into the course, we "forced" students to review their performance (watch their own video), identify specific behaviors that linked to each rubric component, and generate steps to improve each component in subsequent presentations. This guided reflection design follows from Nicol and Macfarlane-Dick's (2006) conclusion that students can only learn from their self-reflection if their reflection is informed by, or measurable against, specific goals, criteria, or standards.

The third best practice we incorporated, multiple opportunities for development, supports long-time understanding of the role of practice in skill acquisition (e.g. Newell & Rosenbloom, 1980), as well as further promotes student use of feedback. By requiring students to come up with the self-reflected steps for improvement, we more explicitly framed the oral presentations as part of a developmental process, which framed the instructor's feedback from the first presentation as part of a feed-forward process. Studies have shown that students will often dismiss feedback if they believe that the feedback only pertains to a discrete assessment (Gibbs & Simpson, 2004; Price et al., 2010). Thus, this aspect of our design was incorporated to increase the value that students placed on the feedback, increasing the likelihood that they would use it to guide their development, not just because they were required to as part of the self-guided reflection assignment.

Justification for Research. This project was designed to evaluate the impact of interjected video feedback on the development of students' oral presentation skills and on student attitudes about the value of oral presentation feedback. We believed this new type of feedback could provide the specific, targeted guidance that would support student development equally well as face-to-face meetings during which the instructor and student review the video together, which has been the standard way for instructors to share targeted presentation feedback with students. Further, instructor load would be reduced somewhat; a pilot study indicated that it took about half as much time for the instructor to watch a video presentation and interject the comments as to meet face-to-face with a student and share the same points.

However, we acknowledge that there are qualitative differences between the interjected feedback, which is completely instructor determined, and the feedback that can occur during a face-to-face meeting, where students can direct some of the focus and also request elaboration or clarification. This personal tailoring within the face-to-face feedback process might make it more likely that students and instructors reach a common understanding on the assessment goals. On the other hand, our pilot data also indicated that some students may feel uncomfortable meeting face-to-face with instructors about their performance, and prefer to watch themselves in the privacy of their own rooms. Therefore, this study was designed to compare the impact of interjected video feedback with face-to-face feedback, embedded within the best practices described above, on both student performance as well as student attitudes.

Methods

Participants

Participants were 31 students from two sections of a core law course for sophomores at an institution in the Midwest. While students are placed into course sections randomly by the registrar's office each semester, in this case, the section of students receiving the face-to-face feedback first had an average Academic Composite (Accomp) score of 3461.69, while the students receiving interjected feedback first had an average score of 3240.6 (max possible is 4,400, and most of our admitted students have a score of at least 2500).

Research Design

This study incorporated a two-group design with counterbalancing across two oral presentation assignments. One of the two sections was randomly selected to receive interjected video feedback following the first presentation, while the other section first received the raw video plus engaged in a face-to-face meeting with the instructor to review the video (N_{Int}=16, N_{F2F}=15). The opposite types of feedback were given to each section following the second presentation. Both groups for both presentations received summarized written feedback plus rubric scores (see details below), and completed the reflection assignment (see details below).

Dependent variables included performance scores, reflection assignment responses, and subjective feedback collected with an end-of-course questionnaire (see details below). In order to control for possible experimenter bias, a blind grader (not the instructor, and someone who did not know which students had received interjected feedback or face-to-face meeting with the instructor after their first presentation) used a rubric to assess the videotaped performances of the two student groups (the instructor graded the presentations separately for input into the course grade).

Materials

Equipment and software. Currently, there is no software that allows instructors to accomplish video capture and interjected instructor feedback on a real-time basis, which would be most ideal and alleviate the stresses of time, administration, and cost. Thus, we investigated several current software applications that would allow instructors to insert comments post production (e.g. Camtasia, YouSeeU, Screen-cast-o-matic, Windows Live Moviemaker). Additionally, we considered lecture capture systems that simultaneously capture a video and information written within a document shown on a screen, but then the comments are spatially displaced from the video. Based on cost and ease of use, we chose Windows Live Moviemaker 2011. This software application is free and intuitive to use for the interjection of short tailored feedback in the form of subtitles at specific points within the videos. Since we ran our study, a newer version of Moviemaker, Windows Moviemaker 2.6, was released. Compared to the old version, the newer version of Moviemaker requires a few additional steps to interject comments. A handheld camera was used to videotape the oral presentations.

Video scoring key. To streamline the interjected commenting process and to minimize students' distraction level while they viewed their videos, the instructor created and used a video scoring key (see Table 1). So, for example, instead of inserting lengthy phrases, paragraphs, or

narrative, the instructor might for example type in "Tr-" to mark that a student transitioned poorly from one subject to the next or "To+" to indicate that a student demonstrated a very appropriate tone while making his or her legal argument. The video scoring key was based on the rubric that students were provided prior to their first and second oral advocacy exercises.

Table 1. *Video Scoring Key for Interjecting Comments in Students' Presentation Videos.*

Key	Skill being assessed
K	Knowledge of subject matter
S	Support (law/facts) for your points
Tr	Transitions
L	Logic of sequence
IP	Information's purpose
W	Word choice
P	Pace
V	Volume
To	Tone
A	Articulation (grammar, enunciation)
I	Inflection (of voice)
EC	Eye contact
M	Movements
R	Responsiveness to audience's questions/ answers
E	Engagement level

Note. The instructor used a "+" or "-" after interjecting a key letter to indicate whether the student's skill was strong or needed improvement.

Rubric. A rubric was created to address the widespread student perception that oral presentations are graded too subjectively and to guide the blind grader's scoring. Each component of the rubric (Content, Organization, Style, and Responds to Audience) and each level of achievement (Not Acceptable, Beginning, Intermediate, and Advanced) was derived from our institution's outcomes for oral communication skills. The specific expectations for each level of achievement were tailored to both the oral advocacy focus of the course and the sophomore level of the students. Each level of achievement had a small range of possible scores, with a maximum of 10 points per component.

Summarized feedback. The summarized feedback included instructor's comments as well as a compilation of in-class peer critiquers' comments. Written comments in the form of full sentences were provided under headings that aligned with the rubric components: Content, Organization, Style, and Responds to Audience.

Guided self-reflection assignment. The guided self-reflection required students to view their videotaped performance (half of them having interjected comments) and list specific instances of both strong and weak performances under each component (Content, Organization, Style, and Responds to Audience). They were required to explain why their performance would have merited a certain level of achievement (Not Acceptable, Beginning, Intermediate, or Advanced), *using the language from the rubric*. Furthermore, students were required to describe specific steps they planned to take to improve in each component. This assignment helped ensure that the students would closely review their videos, because anecdotal feedback from prior semesters indicated that many students avoided watching themselves because it made them

uncomfortable. By requiring students to incorporate the language from the rubric, we created a structured framework for students to self-reflect and increased the connection between the instructor's expectations and the students' understanding about the assessment's goals.

Student subjective feedback questionnaires. To ensure a more comprehensive understanding of the role of interjected feedback in developing students' oral communication skills we created an end-of-semester questionnaire that asked students for their perceptions about the usefulness of viewing the videos, of the instructor's written feedback (rubric scores and comments), of the interjected comments in the video, of the self-guided reflection, and of the rubric criteria. Two additional questions asked about the clarity of the rubric criteria, and the number of times students reviewed their videos beyond what was required for the self-reflection.

Procedure

During the course of one semester, students in the course were required to deliver two oral arguments, each lasting 8 minutes. During each presentation, students presented their evaluation and advocacy of a legal problem to fictional justices of the court (role-played by fellow classmates). The handheld camera was placed on a tripod and positioned to capture the speaker at a podium (the speaker stayed at the podium for the entire presentation). Each observing student was given a copy of the peer review form, which they completed as the presentation occurred and then submitted to the instructor.

Following the presentations, the instructor transferred the media files of the students' presentations from the handheld camera to a PC computer, opened up the media files on her computer using Windows Moviemaker, and used the "Caption" function to insert comments using the shorthand letters from the video scoring key. It took the instructor about 10-15 minutes to interject comments into each student's presentation. Similar to grading papers, interjecting comments into the weaker presentations took longer than the stronger presentations. The videos and feedback were given to students within 4 to 8 workdays following the first presentation, and within 6 to 14 workdays following the second presentation. The feedback included the summarized written instructor comments and rubric evaluation. Upon receiving their videos and feedback, students then had up to a week to complete the guided reflection.

One section of students received interjected feedback, while the other section of students received only a raw video of their performance and individually met with the instructor in face-to-face meetings 1 to 4 workdays after receiving the videos. Students were expected to bring their completed self-reflection to the face-to-face meeting. During these meetings, the instructor played and reviewed the videos with the students, stopping at specific points to discuss their performance. Each of these meetings lasted about 20-30 minutes. The same procedure was followed for both presentations, except that the sections were reversed with respect to which section received interjected feedback and which received face-to-face feedback after the second oral presentation.

During the final lesson of the semester, students completed a paper version of the subjective feedback questionnaire in class. No names or other identifying information were collected with the feedback, and it took approximately fifteen minutes for students to complete.

Data analysis

In order to test the impact of interjected feedback compared to face-to-face feedback, we compared the two groups with respect to their performance and subjective feedback. For the performance comparisons we had a blind scorer use the rubric to assign a total score of up to 40 points, based on his analysis of four components (Content, Organization, Style, and Responds to Audience, each scored up to 10 points). For the subjective Likert-scale feedback, 1 point was assigned for "Not Useful," "Disagree," and "Not Likely," 5 points were assigned for "Very Useful," "Strongly Agree," and "Very Likely," and intermediate scores were given (2, 3, 4) for the progressively intermediate response options (e.g. minimally useful, somewhat useful, and useful, respectively). We categorized the open-ended responses based on common themes that appeared.

Results

Performance Data—Blindly Scored Video Presentations. For each rubric component as well as the total score, we performed a 2 (Group: interjected feedback first or face-to-face feedback first) x 2 (Presentation: first or second) mixed ANOVA, with group being the between variable and time being the within variable. For all components and the total score, there were significant main effects of time, $p < 0.01$ and there were no main effects for groups or interactions.

However, Accomp was higher for the group receiving face-to-face feedback first, $t(24) = 1.6$, $p = 0.06$ (one-tailed), and it significantly correlated with the scores on the students' second presentation, $r\ (26) = 0.52$, $p < 0.01$. Therefore, we calculated difference scores based on the students' amount of improvement for each of the four component scores and the total score, and then for each we performed a single-factor, 2-level ANCOVA using Accomp as the covariate. In all cases, the adjusted means led to increases in the difference score for the interjected feedback first group, i.e. they showed more improvement between presentations, and decreases in the difference score for the face-to-face feedback first group. For the component of style, the adjusted difference between the groups was nearly significant $F\ (1.25) = 3.43$, $p = 0.08$, with the interjected feedback first group showing more improvement across the two presentations than the face-to-face feedback first group (mean improvement = 1.5 compared to 0.6, respectively).

Student Questionnaires: Likert-Scale Responses. In most cases, the average Likert response scores indicated no difference between the two groups regarding the usefulness of the rubric criteria, the usefulness of viewing the videos on their own, the usefulness of the summarized feedback, or the usefulness of the self-reflection. In all these cases, there was generally good agreement that each of the aspects of the course feedback process were useful, with the average scores ranging from 3.8 up to 4.4 on the 5-point scale.

However, both groups indicated that they watched their videos more times after the first presentation (mean = 1.53) than the second presentation (mean = 1.28). A 2 (Group: interjected first or face-to-face first) x 2 (Presentation: first or second) mixed ANOVA for the number of times to watch their videos beyond what was required to complete the reflection assignment and meeting with the instructor showed no group difference and no interaction, but a significant effect of presentation, $F(1,29)=5.24$, $p=.03$.

Further, there was a clear indication that, regardless of group, the students believed the face-to-face feedback (mean = 4.5) was more useful than the interjected feedback (mean = 3.8). Thus, we also performed a 2 (Group: interjected first or face-to-face first) x 2 (type of feedback:

INT or F2F) mixed ANOVA for reported usefulness of feedback. Regardless of what type of feedback they received first, students significantly rated face-to-face feedback as being more useful, $F(1, 28) = 8.33$, $p < 0.01$. There was no main effect for group nor was there a significant interaction.

Student Questionnaires: Open-Ended Responses. Students' open-ended responses showed several clear trends that help us better understand the performance and Likert-scale data, and that hint at pros and cons for both the interjected and the face-to-face feedback. These comments did not show different trends based on group (whether students received interjected feedback first or face-to-face feedback first).

First of all, the vast majority of students indicated the general value of having the videos to review. For example, several noted the helpful aspect of being able to view themselves as if they were a member of the audience rather than the presenter, for example: "Seeing yourself is completely different sometimes than how actually you pictured yourself doing," and "I was able to put a critique to an actual picture and see what everyone else saw." Many students also made generic comments about how watching their videos helped them improve: "I learn and improve better analyzing my own video on my own time," "a lot of the times you don't notice the mistakes or habits you make so the video allowed me to break bad habits and improve," and "I think [receiving a videotaped presentation] was the most useful feedback I have ever received on an oral presentation."

As noted above, all students were required to watch their videos prior to answering the guided reflections. Thus, for both presentations, all students watched their video in private first, and then half of them met with the instructor for face-to-face feedback. Similar to our pilot study, many students in this study also found it uncomfortable to watch themselves, even if at the same time they noted how beneficial it was to have the video recordings. Example comments include, "it's very difficult to watch yourself in the video when you're not presenting and it helped give insights that I otherwise would not have noticed," "It was awkward to watch myself, but it did help accentuate idiosyncrasies during the presentation," and "Allowed me to see firsthand what I was doing wrong. But it was the most awkward thing ever."

More explicitly related to the interjected feedback, many students appreciated the targeted nature of the interjected comments. Example responses include, "helps identify exactly where mistakes were made," "showed specific instances to focus on," "showed positive/negative things right as they were happening," and "that was the most useful part. I saw that I did something well or poorly and I was immediately notified from the instructor's point of view." Less positively, a small number of students indicated that the interjected comments were distracting, or that they struggled with the abbreviations used (Table 1). For example, the interjected comments were a "little confusing - had to go back and look up the symbol key a couple of times and it took away from watching the video."

With respect to the face-to-face feedback, students especially appreciated the depth of explanation when they met face-to-face with the instructor. One student stated, "I understood more when the feedback was face to face and more personal—I also learned more about the concepts," and another student echoed this sentiment in the following comment: "[Face to face] was the best feedback, even better than the written feedback because we were able to really dissect my argument and discuss the pros/cons and how to improve on other points that could have been made." Others noted that the face-to-face feedback "Gave a chance to go deep into the reasoning behind deficiencies and find a way to fix them," and "helped explain in detail what I could do better."

Discussion

Our study was designed to investigate how the use of interjected comments into video recordings of student oral presentations would impact student presentation skill development relative to the use of a video recording and face-to-face feedback sessions with the instructor. A motivation for this work was to create effective practices for students' development while managing the load on the instructor. We carefully embedded the oral presentation feedback within several other best practices for student development (e.g. use of a rubric, guided reflection to link the feedback with the presentation objectives). Overall, our data indicate significant positive effects of using video recordings, with respect to both the development of students' presentation skills, and their self-reported attitudes. Both groups improved between their first and second presentations. However, other than for the rubric component of Style, where the group receiving interjected feedback first showed a strong trend for greater improvement, there were no significant differences between groups.

The trend toward a difference in improvement for the Style component may be due to the fact that this component focuses on more overt behaviors (e.g. "enunciation, pace, volume, eye contact, body movements") that can be targeted more precisely within the video recordings. In contrast, the rubric components of Content and Organization tap into higher-level aspects of the presentations that aren't easily targeted within a few frames. Further, even when some aspect of organization or content was indicated using the interjected video comments, the nature of the comments, i.e. the use of short abbreviations such as "L" to indicate something about the logic of the sequence, meant that they were not deeply informative. This example highlights the inherent tension present when balancing instructor load and quality feedback; although short abbreviations are a time-saving mechanism for instructors, they can lead to the commonly held student perception that instructor feedback is vague and difficult to apply (Price et al., 2010).

The students' self-reported feedback offers further insight into the relative benefits of the interjected and face-to-face feedback. Regardless of whether they received the interjected feedback first or second, students reported great value in having the videos to review, and they showed an appreciation of the targeted nature of the interjected comments. Thus, even though providing students raw videotapes without anything more may not help them to reflect as effectively as possible (Cooper, 2005), the videotapes still serves as a tangible artifact that allows them to view themselves in the third-person, and therefore helps them gain a new perspective on their performance. Furthermore, students' positive reception of the interjected comments aligns closely with Gibbs and Simpson who stated that feedback needs to be specific to be effective (Gibbs & Simpson, 2004).

Many students also explicitly noted the discomfort they felt when watching themselves, which suggests another benefit of the interjected comments: the feedback review process can be private rather than shared with the instructor. However, these same students also clearly indicated that they especially appreciated the face-to-face feedback because of the depth and personalized nature of that feedback. In fact, for both groups, face-to-face feedback was rated as significantly more useful than the interjected feedback. These preferences highlight, perhaps, an unstated assumption that face-to-face meetings resulted in more "quality" feedback as opposed to interjected feedback which was merely "timely" (Winter & Dye, 2004; Chang et al., 2012). One reason why students may have felt that the face-to-face meetings resulted in more quality feedback is that they had the opportunity to direct the discussion and engage in a dialogue with

the instructor, even if ultimately, they would have gained the same information through both interjected and summarized comments.

As we move forward in considering how best to use an instructor's time and resources, we should examine the disconnect between students' perceptions and performance. After all, what we as instructors ultimately want is an improvement in student performance. If the face-to-face feedback really was so much more useful, why didn't the group receiving face-to-face feedback on the first presentation show more improvement from the first to the second presentation than the group that first received interjected feedback, especially with respect to the areas of content and organization? Is it really worth an instructor's time to meet individually with each student and review the videotapes?

One interpretation is that the Content and Organization components of performance are more cognitively challenging and require more practice to improve. In contrast, the Style components may be more tangible and easier for students to develop in a shorter time period. Thus, even if the face-to-face feedback was more useful for students, the amount of improvement seen from one presentation to the next would not be significant. In future semesters, development of the Content and Organization components could be further enhanced by requiring more than two oral presentations in order to build in more opportunities for practice. Alternately, the addition of writing assignments that specifically link to the presentations would allow instructors to give more detailed, interjected written feedback on the content and organization in the papers without needing to meet face-to face with the students

However, we don't want to forget about the benefit of the interjected comments on the Style component development. The style and real-time audience interaction aspects of oral presentations are what distinguish oral presentations from written papers, and are the skills we hope to develop in our students. In the interest of not overloading instructors perhaps the more overt nature of the style elements could be captured through a peer-review process. The benefits of peer review (e.g. engagement, greater depth of processing for the reviewer and receiver of the review) are well documented for aspects of assignments to which students can bring some expertise (e.g. Lundstrum & Baker, 2009). Throughout their lives, students have watched many others give presentations, and they should be able identify stylistic aspects of presentations that were less effective, especially if given specific guidance on behaviors to note. What most students are not practiced at is watching and analyzing their own performances, especially during more awkward moments where the human tendency is to look away. Thus, students could be assigned to review a small number of classmates' video recordings and, using style guidelines, insert the interjected feedback. The students could then watch their own videos with interjected feedback in the privacy of their own room. While instructors could still note stylistic aspects during face-to-face feedback, they would be able to focus the majority of their discussion on the higher-level aspects of content and organization. In this way, instructors could maximize their time and efforts, as well as leverage peer critiquing to provide students a well-balanced assessment of oral presentation skills that does not unduly emphasize content over command of the oral medium or oral medium over content (Cooper, 2005).

Important to note is that all students received their feedback as part of an intentional course design that incorporated best practices, such as multiple presentations to support a developmental focus (Gibbs & Simpson, 2004; Price et al., 2010), the integrated use of the rubric (Stevens & Levi, 2005; Andrade, 1997), and structured reflection activities that "forced" students to watch the video at least once and explicitly state steps they would take for improvement (Nicol & Macfarlane-Dick, 2006). In other words, the use of video technology in

and of itself is not a complete solution (Hooper & Rieber, 1995). An intentional course framework ensures more explicit overlap between the students' and instructors' understanding of the same goals (Nicol & Macfarlane-Dick, 2006). Without this framework of best practices, it's likely that the positive impact of any feedback would be decreased. In fact, the significant decrease in the number of video viewings following the second presentation compared to the first presentation suggests that students often only move beyond the required minimum when there is a follow-on assignment that could clearly benefit from use of the feedback (Gibbs & Simpson, 2004; Price et al., 2010). All of our best practices helped ensure that our feedback process was not a one-way one street from instructor to student, but rather, part of a process involving both traditional and non-traditional forms of feedback that required active engagement from the students as well as the instructor.

Also with respect to technology use, it's important to acknowledge that the use of technology provides challenges (e.g. server space to store videos, purchase costs, time to learn to use applications) (Kovach, 1996), and that, despite rapid evolution, the technology resources are often not designed with instructors' goals in mind. In our study, the time it took the instructor to provide the interjected comments, post-production, using the abbreviations shown in Table 1 was about half the amount of time taken when meeting face-to-face. Thus, we did achieve a substantial time savings. However, at 10-15 minutes per video, the total amount of time was still substantial. Thus, while we personally believe there is a benefit to recording student oral presentations and to interjecting comments to give feedback, especially for style elements, we cannot ignore some of the costs also associated with the approach.

In sum, students crave feedback (Robert & Anthony, 2003), and our study indicates that video feedback can help support student development of oral presentation skills. Our results also suggest that, depending upon the specific skills an instructor wants to develop, i.e. style versus content and organization, different types of feedback might be more effective. Further, our student feedback responses suggest that access to even just the raw video without comments or a face-to-face meeting could provide some benefit, especially with respect to general aspects of the presentation, because the videos provide students with the perspective of a member of the audience. Thus, an instructor might choose different feedback options for different oral presentations throughout the semester in order to balance developmental progress and load on the instructor. Alternately, through the use of interjected comments by peers (for style elements) and face-to-face by instructors (for the higher-level content and organization elements), both types of components could be effectively developed without expecting an instructor to provide both types of feedback. Crucially, we should all remember that feedback needs to implemented with best practices in mind, so that students have reason to and take the time to review and process the feedback. Without student engagement in the feedback and development process, no development will occur.

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