

Using iAnnotate to enhance feedback on written work

Kristi Upson-Saia¹ and Suzanne Scott²

Abstract: This paper discusses an iAnnotate feedback model used by the authors to comment on written work in first-year writing courses. We show that the use of iAnnotate, like other emergent technologies, mitigated a number of issues that regularly undermine high-quality feedback (such as the time it takes for instructors to write detailed comments and the challenge for students to read illegible handwriting or to keep track of hard copies of their papers). Yet, we contend that our feedback model goes beyond these practical benefits and, more importantly, enhances student learning. Specifically, we argue that it aligns instructor and student standards, elucidates for students the different types of comments instructors make (and clarifies that they ought to prioritize some comments over others), helps students and instructors identify recurrences and patterns of comments (thus also helping students and instructors diagnose general writing strengths and weaknesses), and conditions students to engage with feedback not only as a justification of their grade, but as a launching point from which they can develop as thinkers and writers. The success of this feedback model is partly attributable to the features of iAnnotate and partly attributable to the classroom complements we designed as part of the feedback model.

Keywords: feedback; assessment; e-assessment; technology; technopedagogy; e-learning tools; iAnnotate; visual learning; writing instruction

I. Introduction.

If you ask instructors what the most dreaded or onerous part of teaching is, “grading papers” is the response that nearly always tops the list. Instructors complain that providing extensive feedback takes time, time that is in short supply for those who are teaching a full load, who have an active research agenda, and who are expected to perform service to the institution. When they find out that their feedback has gone unread by students,³ many instructors become embittered and exchange careful, detailed remarks for simpler notes or just grades (Wojtas, 1998; Higgins, Hartley, & Skelton, 2001).

In this paper, we propose a feedback model that attempts to alleviate some of the issues of grading commonly registered by instructors. Specifically, we aimed to create a feedback model that students understand to be a valuable component of their learning process and that instructors perceive to be worth the time and effort they expend. After a brief overview of pedagogical scholarship on feedback (including the recent introduction of emergent technologies to enhance feedback), we describe our use of iAnnotate in four writing courses at Occidental College from 2011-2012, we explain how our use of the application addresses persistent

¹ Associate Professor, Religious Studies and Director for Teaching Excellence, Occidental College, upsonsaia@oxy.edu

² Assistant Professor, Film and Media Studies, Department of English, Arizona State University, suzannelynscott@gmail.com

³ Duncan (2007) argues that students tend to read instructors' comments only if the grade they receive is misaligned with the grade they expect to have earned, while Wojtas (1998) found that students do not read the comments “if they disliked the grade.”

complaints from instructors and students, as well as how our use of the application aligns with the best practices detailed in scholarship on feedback.

II. Pedagogical scholarship on feedback.

There is no shortage of scholarly literature on feedback. Some scholarship focuses on how instructors can most effectively structure their feedback, while other scholarship focuses on how to motivate students to engage feedback in a meaningful way. With regard to the former, consensus has emerged around the characteristics of high-quality feedback:

- 1) It is seamlessly aligned with the articulated goals and standards of the assignment (Nicol & Macfarlane-Dick, 2006; Duncan, 2007; Hounsell et al., 2008; Sadler, 2010).
- 2) It focuses on the most important learning objectives, leaving aside lower order concerns (Black & Wiliam, 1998; McNeill, Gosper, & Xu, 2012).
- 3) It is returned in a timely manner while the material is still fresh in students' minds (Cowan, 2003, Hepplestone et al., 2011).
- 4) There is a required mechanism through which students reflect on and respond to the feedback, increasing the likelihood that students will incorporate suggestions in future assignments (Carless, 2006; Hepplestone et al., 2011; Carless et al., 2011).

While there is broad agreement on the features of high-quality feedback, scholars acknowledge that this sort of feedback is exceedingly time- and labor-intensive for instructors. Moreover, scholars contend that there are barriers to students' understanding or apprehension of even high-quality feedback. First, instructors and students hold different perceptions about the purpose and function of feedback. While students understand comments to be merely a justification of the grade they earned, instructors also understand their feedback to be another opportunity in which to (re)teach the material or to offer advice on how students can develop their skills as logicians or writers. The misalignment of feedback's function—dubbed “feedback” versus “feedforward”—leads to students' misuse or lack of use of high-quality feedback (Bjorkman, 1972; Mutch, 2003; Rust, O'Donovan, & Price, 2005; Nesbit & Burton, 2006; Weaver, 2006; Lizzio & Wilson, 2008; Poulos & Mahony, 2008; Irons, 2008; Burke, 2009; Draper, 2009; Walker, 2009; Sadler, 2010; Price et al., 2010).

Second, it is a challenge for students to interpret instructors' comments because we offer different types of comments. For instance, we write critiques of students' ideas or writing skills alongside conversational responses to their ideas alongside suggestions for further reading or research (Mutch, 2003). We expect students to engage differently with different types of comments, yet we rarely make these expectations explicit nor do we train students in how to properly engage different types of comments. Students, thus, tend to treat all comments the same: as criticisms of their work that justify the grade they were awarded. Additionally, faculty include a range of comments that they would hierarchize: lower-order comments (e.g., grammatical problems, flawed prose, etc.) versus higher-order comments (e.g., problems with argumentation, reasoning, and marshaling evidence). Yet, again, we rarely explain to students how to rank the importance of different comments and thus, to our disappointment, students tend to focus their revision work on less important—but more easily fixable—issues, ignoring the bigger problems (Mutch, 2003; Weaver, 2006).

Third, instructors struggle to find the balance between providing highly individualized comments, careful instructions for revision, and advice for future development (i.e., enough feedback so that students have a clear understanding of what is going wrong), while also

avoiding so much feedback that students are left overwhelmed and paralyzed, not knowing where to start addressing this whirlwind of comments (Monroe, 2002; Higgins, Hartley, & Skelton, 2002; Nicol & Macfarlane-Dick, 2006; Miller, Linn, & Gronlund, 2012).

Within the past several years, a new set of scholarship on feedback using emergent technologies has taken steps toward addressing some of the obstacles to high-quality feedback.⁴ Some studies have argued that new technologies offer a more efficient workflow that reduces the amount of time and effort expended by instructors. As Heinrich et al. (2009) put it:

...e-tools can make a real impact on efficiency: providing documents, easily accessible to all involved, anytime and anyplace; accepting assignment submissions, managing deadlines, recording submission details, dealing with safe and secure storage; returning commented-on assignments and marks to students; storing and if necessary exporting class lists of marks. Using e-tools for these tasks frees up time that can be used for focusing on quality feedback.

Heinrich et al. (2009) agree that instructors have found Learning Management Systems (LMS) to be efficient ways to manage the submission of student work since the LMS automatically records late work and ensures that student work remains secure.

Other studies propose that instructors compile a bank of commonly-used comments that they can simply cut, paste, and tailor to each individual paper, saving much of the time it would ordinarily take to write the same comments again and again. This time-saving measure enabled them to provide more feedback to students in large courses and to spend their time tailoring their stock remarks to individual students' work (Brown, Bull, & Race, 1999; Heinrich, 2007; Irons, 2008; Heinrich et al., 2009).

Instructors are also able to return work in a timelier manner (not needing to wait until class to hand deliver in person hard copies of their feedback); this timeliness increases the probability that students will read and value our comments (Denton, 2001; Cowan, 2003; Hepplestone et al., 2011). Electronic feedback is also more legible to students, which means students are no longer required to ask us during office hours to decipher illegible comments; e-comments decrease the chance that they would simply ignore remarks they could not read on their own (Denton, 2001; Denton et al., 2008).

Heinrich et al. (2009) report that using technologies, such as the Track Changes feature in Microsoft Word, makes it possible to embed links to additional readings or resources into the comments, directing students' further engagement with the material. These sorts of comments shift the culture of feedback from a means to simply justify the grade to a dialogic engagement between student and instructor that is presumed to continue beyond the individual paper or assignment (e.g., Irons, 2008; Carless, 2006; Price et al., 2010; Carless et al., 2011).

Finally, electronically submitted and commented-upon work facilitates better assessment of student progress over time. When working with hard copies, an instructor would have to make copies of hand-written comments and create an easily navigable file system for those hard copies. Electronic papers with embedded electronic comments can be stored and catalogued more easily so that instructors can track the progress of students' work over the course of the semester (Heinrich et al., 2009).⁵

⁴ The new technologies discussed in this literature include general software programs (e.g., Microsoft Word Track Changes, Google.docs), Learning Management Systems (e.g., Moodle, Blackboard), and specialized applications or assessment tools (Markin, Turnitin, GradeMark, Re: Mark, MarkTool, Adobe, and iAnnotate).

⁵ Moreover, instructors interested in assessing their own assessment practices have at their disposal an easily navigable set of papers with their comments (Heinrich et al., 2009).

This paper adds to the scholarly conversation about the pedagogical benefits of emergent technologies. We show that the use of iAnnotate, like other emergent technologies, enhances the efficiency of instructor’s workflow, reduces the time it takes to return papers, and provides students with more legible feedback. Yet, we contend that our feedback model goes beyond these practical benefits and, more importantly, enhances student learning. Specifically, we argue that our feedback model aligns instructor and student standards, elucidates for students the types of comments we make (and helps them prioritize some comments over others), helps students and instructors identify recurrences and patterns of comments (thus also helping students and instructors diagnose general writing strengths and weaknesses), and conditions students to engage with feedback not only as a justification of their grade, but as a launching point from which they can develop as thinkers and writers. In what follows, we show that the success of this feedback model is partly attributable to the features of iAnnotate and partly attributable to the classroom complements we designed around the feedback model.

III. Approach.

Beginning in Fall 2011, Occidental College’s Center for Digital Learning + Research and the Center for Teaching Excellence co-sponsored several cohorts of Faculty Learning Communities that explored the pedagogical uses of the iPad. At that time, the authors of this paper began to use iAnnotate to grade student writing in four first-year writing-intensive seminars.⁶ Although iAnnotate has received much praise on blog posts, such as *ProfHacker* on the *Chronicle of Higher Education* website, for being an easy, portable, paperless way to annotate and share documents, not enough attention, we contend, has been paid to the pedagogical benefits of the application.⁷ After a brief description of the features of iAnnotate and how we used the tool in our writing courses, we will discuss in detail how our feedback model enhanced student learning.

iAnnotate PDF is a productivity application from Branchfire that is available on the iPad and Android tablets.⁸ iAnnotate includes a palette of tools to annotate a document, including the ability to highlight, underline or strikethrough, type or write notes (in the margins or in collapsible balloons), and to bookmark. For commonly used annotation, iAnnotate enables users to create stamps (text or symbols) that can be imprinted on the document with a single click from the tool bar.⁹

We found the stamps feature to be exceedingly useful when commenting on student writing. Since we tend to evaluate papers on the same criteria—the criteria laid out in our grading rubrics—we tend to write the same sorts of comments on every paper we grade. The stamps feature of iAnnotate, therefore, enabled us to save an inordinate amount of time writing marginal comments. We simply created stamps for our commonly used comments, such as: “you need to make your reasoning more explicit,” “good, careful reasoning,” “nice use of evidence,” “you need to interpret/analyze your evidence,” “clarify the point of this paragraph,” “nice

⁶ While our focus has been exclusively on using iAnnotate to write comments on student papers, the application has been widely adopted in academic iPad pilot programs at Stanford University, Massachusetts Institute of Technology, and the University of Michigan, among others. The application’s uses in these academic contexts range from annotating course readings, to taking notes on class PowerPoint presentations, to sharing documents and working collaboratively.

⁷ See, for example, Jones (2010) and Sample (2011).

⁸ At the time of publication, iAnnotate retailed for \$9.99.

⁹ iAnnotate has many default stamps, comments such as “excellent” and “good job,” etc., as well as symbols such as check marks, smiley faces, and exclamation points. We found these comments to be far too vague to be useful and thus we quickly created our own stamps.

guidepost,” “awkward prose,” “citation needed,” etc.¹⁰ After the initial time and labor it took to set up the stamp system, the process of inserting a stock comment with a single click made the feedback process much faster.

In this way, the stamps mimic the “comment bank” suggested by Irons (2008) and Heinrich et al. (2009). Yet, because the color of the stamps are adjustable, we sorted our individual comments into the categories we used on our rubric—argument, structure, use of evidence, writing style/prose, and mechanics—and then assigned a different color to each category of comments. For instance, comments related to argumentation were colored blue, comments related to evidence were colored green, comments related to organization and structure were colored orange, and so on (See Figure 1). In this way, students could easily see how our comments mapped onto the rubric and onto broader areas of thinking and writing.

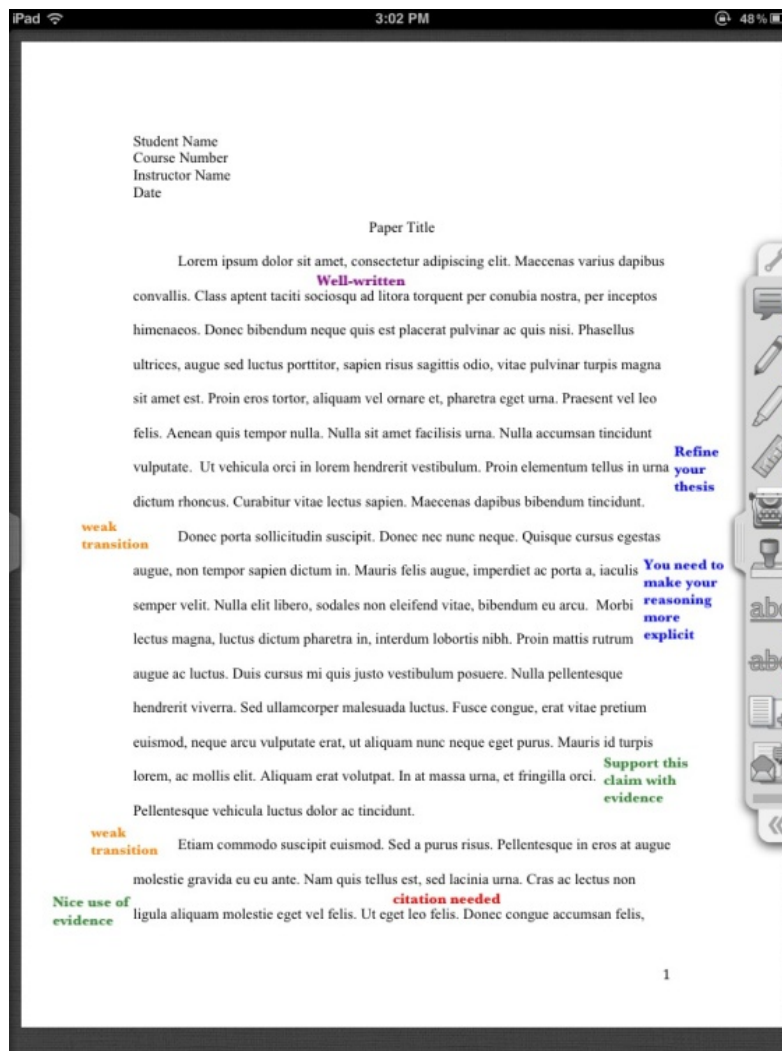


Figure 1. Example of student paper with instructor comments.

Further, we used other features of iAnnotate to demarcate different types of comments. As noted above, we used our custom stamps to mark strengths and weaknesses in terms of

¹⁰ For a catalog of our custom stamps, see Appendix A.

argument and writing. Still more, we used the checkmark stamp (✓) to acknowledge a good point and collapsible balloons (that included lengthier comments) to converse with students' ideas and arguments (See Figure 2).

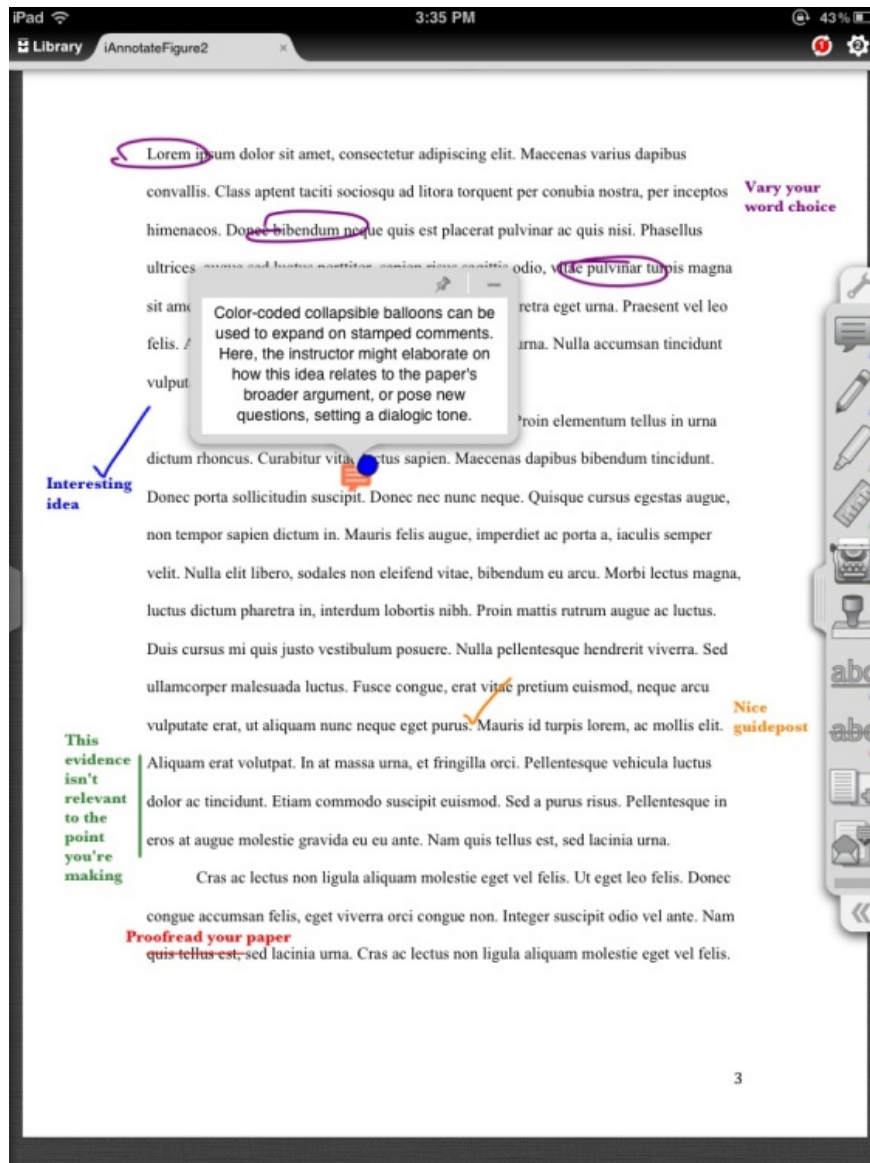


Figure 2. Example of student paper with additional iAnnotate markup.

In addition to these types of annotation in the margins of the paper, we included comments at the end of the paper. Here we interpreted the comments above. We pointed students back to the check marks that indicated where they succeeded and we elaborated on *why* these were particularly successful moments. We directed them to remarks made in collapsible balloons and tied together our engagement with their ideas in one synthetic remark. Finally, we identified the strengths and weaknesses of their argument and writing by drawing their attention to visual patterns of comments: recurring stamps or recurring colors. For instance, if their paper was littered with positive blue comments and negative orange comments, we could praise them for their exceptional argumentation and encourage them to work on their organization. In this way,

our summative remarks at the end of the paper provided students a key to deciphering the marginalia above.

IV. Teaching Method.

Although our summative remarks gave students a road map to decipher our comments on their papers, we found that we also needed to spend time in class talking about our feedback method. That is, this feedback model needed to be carefully integrated into a writing course in such a way that students: 1) understood the goals of the method and how those goals aligned to the standards and objectives of the assignment/course; 2) understood how to interpret and use our feedback; and 3) were required to reflect on and incorporate feedback into subsequent writing assignments. In this section, we will discuss these classroom complements to our written feedback.

A. Aligning Student and Instructor Expectations.

As scholars have long demonstrated, in order for students to benefit from feedback, they must understand the standards on which they are being evaluated, the feedback must make clear how their performance measures up to those standards, and the feedback must offer suggestions on how they can move steadily closer to achieving those standards on subsequent work (Sadler, 1989; Nicol & MacFarlane-Dick, 2006). In order to align our students' expectations with our own, in class we introduced the color-coded rubric (See Figure 3) on which their work would be assessed and showed them a sample paper marked up using iAnnotate. We explained how sets of comments lined up with categories of the rubric and we urged students to pay attention to the colors of our comments in order to discern broader writing strengths and weaknesses. We also used this in-class orientation to delineate between higher and lower order comments, again corresponding to the color-coded rubric (e.g., explaining that blue comments on argumentation are more significant than red comments on mechanics). We provided this orientation on both the first day of class and again when we distributed and discussed the first assignment. Moreover, on our course sites, we posted the rubric and a description of and key for our iAnnotate feedback model so students could reference these materials on their own time as well.

Once students had completed their first draft, we devoted several class periods to writing workshops, pertaining to aspects of the rubric (e.g., one day each on use of evidence, structure and organization, thesis, prose, introductions, and conclusions). In each workshop, we circulated a handout that used language on our rubric and that would show up later in our customized stamps. This synchronization between the writing instruction, rubric, and stamps created a consistent message to students about our standards, promoted transparency in how student work would be assessed, and conditioned students on how they should be evaluating their own work during the pre-writing and drafting phases and in peer review sessions.

B. Navigating, Interpreting, and Using Feedback.

As mentioned above, scholars have found a persistent misalignment between instructors' and students' perceptions of the purpose of feedback. While students tend to read feedback only as a justification of their grade, instructors hope students learn—about course material or about their skills as thinkers and writers—from their comments. Moreover, although instructors offer a

| | "A" Paper | "B" Paper | "C" Paper | "D" Paper | "F" Paper |
|-----------------------|---|---|--|--|--|
| Argumentation | <ul style="list-style-type: none"> Excels in responding to assignment, and demonstrates mastery of course concepts and materials Thesis presents a clear, focused, and compelling argument Paper recognizes the complexities of its argument throughout the analysis | <ul style="list-style-type: none"> Responds appropriately to the assignment, demonstrates clear understanding of course concepts and materials Good argument, clearly articulated in thesis, though might need refining Begins to acknowledge the complexities of its argument | <ul style="list-style-type: none"> Doesn't fully respond to the assignment, demonstrates some misunderstanding of course concepts and materials Paper has a weak argument, thesis is too general Fails to acknowledge other views | <ul style="list-style-type: none"> Doesn't respond appropriately to the assignment, disconnected from course concepts and materials Argument is unclear, thesis is weak Thesis too vague or general to be nuanced or complicated | <ul style="list-style-type: none"> Does not respond to the assignment, displays no familiarity with course concepts or materials No identifiable argument or thesis |
| Evidence & Support | <ul style="list-style-type: none"> Argument is thoroughly supported by strong, specific, and appropriate evidence Evidence is clearly introduced, analyzed and connected to the argument | <ul style="list-style-type: none"> Paper's argument is supported by relevant evidence, though not always the strongest or specific quotations Analysis of evidence needs further development | <ul style="list-style-type: none"> Paper's argument is supported by limited evidence that is only occasionally relevant Relevance between argument and evidence are somewhat unclear | <ul style="list-style-type: none"> Evidence is insufficient, misconstrued or misrepresented Unclear relevance between evidence and argument | <ul style="list-style-type: none"> Argument is based on little to no evidence Relevance between evidence and argument is absent/incorrect |
| Structure | <ul style="list-style-type: none"> Paper flows logically to craft a cohesive argument Paragraphs clearly guide the reader through a progression of ideas Uses transitional sentences to develop strong relationships between ideas | <ul style="list-style-type: none"> Generally well-constructed flow of ideas Paragraphs are ordered thoughtfully, each paragraph relates to central argument Transitional sentences create a logical progression of ideas | <ul style="list-style-type: none"> Paper jumps from one idea to the next, lacking a clear structure Occasional connection of ideas between paragraphs Simple sequential rather than transitions based on logic | <ul style="list-style-type: none"> Paper wanders from one idea to the next, making it difficult to distill the argument Limited connection of ideas between paragraphs Paragraphs may lack topic sentences or connection of ideas | <ul style="list-style-type: none"> Lacking organization and coherence Disjointed connection of ideas between paragraphs |
| Style | <ul style="list-style-type: none"> Displays a unique critical voice Style fits the paper's audience Chooses words carefully, for their precise meaning Demonstrates thorough and thoughtful editing and revision | <ul style="list-style-type: none"> Displays a clear critical voice Style is conscious of paper's audience Uses words effectively, if too generally at times Demonstrates revision and editing | <ul style="list-style-type: none"> Displays a critical voice that is generic or bland Style only occasionally displays awareness of paper's audience Sentence structure and word choice frequently too unfocused, wordy or confusing Minor revisions and editing | <ul style="list-style-type: none"> Critical voice is unclear Style isn't appropriate for paper's audience Simple, awkward, or monotonous sentence structure and word choices Minimal revisions and editing | <ul style="list-style-type: none"> Lacking critical voice Unaware of paper's audience Many awkward sentences and misused words No evident revisions or editing |
| Mechanics & Citations | <ul style="list-style-type: none"> Almost entirely free of spelling, grammar, and punctuation errors All sources are cited correctly and completely | <ul style="list-style-type: none"> May contain a few spelling, grammar, or punctuation errors, but they don't impede understanding Sources cited correctly and completely | <ul style="list-style-type: none"> Several spelling, grammar, or punctuation errors that distract the reader Minor citation errors | <ul style="list-style-type: none"> Contains many spelling, grammar, or punctuation errors Incomplete citations | <ul style="list-style-type: none"> Pervasive spelling, grammar, or punctuation errors Missing citations |

Suzanne Scott & Kristi Upson-Saia • Sample Writing Rubric • Occidental College
 (Writing rubric color-coding matches grading in iAnnotate)

Figure 3. Color-coded Rubric.

variety of types of feedback (e.g., criticisms of specific ideas, conversational engagement with ideas, comments on broader writing skills, etc.) and although instructors expect students to engage differently with each type of comment, students have a hard time distinguishing these different kinds and levels of feedback. In short, students need to be trained to understand how we expect them to read and use our feedback.

After returning their first paper, we devoted classtime to reminding them how to navigate our feedback: we explained the difference between stamps, checkmarks, and discussions in the collapsible balloons. To this we added a discussion of what we viewed to be the purpose and function of feedback and of how they ought to engage with each type of comment. We clarified that feedback was useful to justify the grade they received, but to do more than just that. We explained that they should use some feedback—our stamps that, in aggregate, pointed out broad areas of writing strengths and weaknesses—to inform their reflection on their broader writing and revision process and to modify their current process of drafting and revising. Further, we explained that they should use other types of feedback—our comments in collapsible balloons that engaged their ideas—as an attempt to point out areas in which students' ideas need to be corrected or developed. This might mean that students need to review course material that they did not understand sufficiently or that we are encouraging them to continue to pursue an interesting line of inquiry in a subsequent paper. Our aim was to reorient students to the range of ways they might use our feedback, thus maximizing the value of our comments for them as well

as for us. While any instructor could teach students to use even traditional feedback in this way, we found that the palette of annotation tools in iAnnotate—namely, the ability to color-code the stamps and to vary the look of our comments—made it easier for us to visually represent these different kinds and types of comments and to coach students on how to engage differently with each.

C. Reflection.

Although instructors are regularly disappointed that students do not make good use of their careful feedback, recently several scholars have observed that students are seldom, if ever, required to engage with instructor feedback. These scholars urge instructors to require some sort of assignment in which students read and reflect on feedback given to them (Weaver, 2006; Hepplestone et al., 2011; Carless, 2011). Following this advice, we required students to reflect on and respond to our feedback in two ways. At the end of the semester (directly before they began work on the final paper), students had to compose a short written reflection on all of their papers to date in the course. They were to compose a self-assessment that identified broad areas in which they did well and poorly, noted areas in which they had improved over the course of the semester, and devised strategies for continuing to work on areas in which they were persistently weak. Then we met with students in one-on-one conferences to discuss their ideas for their final paper, as well as to talk about their research, writing, and revision process as it related to the strengths and weaknesses identified in their reflection.

V. Findings.

Because this was an informal and limited pilot program, our findings are grounding in (1) the instructors' assessment of students' development over the course of the semester; (2) students' written self-assessments;¹¹ (3) anecdotal student feedback in one-on-one conferences; (4) student feedback collected in course evaluations;¹² and (5) for one of the four courses, pre-semester and post-semester surveys.¹³ We have divided our findings into three subsections. First, we enumerate how our feedback model enhanced student learning. Second, we discuss some of the more practical benefits of this feedback model for students and instructors. And finally, we present issues that arose and offer suggestions on how they might be resolved in future iterations of this feedback practice.

A. Enhancing Student Learning.

This feedback model had several immediate benefits to student learning. For clarity, we have broken down these learning benefits in a way that most clearly delineates them; we recognize, though, that these are artificial categories. In practice, we saw many intersections between these

¹¹ With sixteen students enrolled in each class, we had a total of sixty-four course self-assessments.

¹² With sixteen students enrolled in each class, we had a total of sixty-four course evaluations.

¹³ After teaching three courses using our feedback model, we gave two surveys to gather both quantitative and qualitative data about students' attitudes toward feedback in general and to our feedback model specifically. The pre-semester survey was designed to assess students' exposure to and preferences for hand-written or electronic comments, to assess how students' use feedback (if at all) in subsequent writing assignments, and to help us design the in-class framing of our feedback model. The post-semester survey was designed to collect student responses to our feedback model to help us identify issues and refine the model in subsequent courses. Both surveys were optional, with thirteen of sixteen enrolled students completing both, and were composed of a mixture of multiple choice, ranked/scaled options, and open-ended elaborations or justifications of their responses.

categories. First, we found that, in comparison with prior students in our first-year writing courses, these students had a better understanding of our standards and expectations. Because the stamp system was aligned with our grading rubric and with the writing workshops—in terms of verbatim language and color-coded categories—our standards were repeatedly enforced and linked to visual cues.¹⁴ Students’ self-assessments demonstrated that they had absorbed our standards as a vast majority of them used our own categories and language to discuss their primary strengths weakness and to make a concrete plan for improvement. For instance, one student remarked that the many green stamps that read “you need to interpret/analyze your evidence,” “this evidence isn’t relevant to the point you’re making,” and “insufficient evidence: add more/greater range to substantiate your point” visually clarified that the student had trouble marshaling evidence. The student wrote in her self-assessment, “I need to work on interpreting evidence to create a better dialogue between sources and my own ideas. When writing I will often pull in quotes I find last minute without really thinking about how well they substantiate the point I’m trying to make. In preparation for my term paper, I plan on writing out a detailed outline and mapping out each specific point/quote from sources that I want to use to make sure they’re relevant and explicitly linked to my argument.” Another student noted that it was abundantly clear that he was not guiding his readers through the stages of his argument since “every paragraph in every paper has a ‘you need a better transition here’ stamp next to it!” Although we did not instruct students to use our categories during peer-reviewing sessions, we regularly overheard them offering feedback to their peers that mimicked the categories and language of our rubrics.¹⁵ One student even began bringing her own set of colored pens to peer-review sessions to replicate the colored taxonomy of the rubric when writing comments on her classmates’ papers.

Second, we found that our feedback model taught students (especially first-year students who were unfamiliar with college-level writing and feedback) how to read and rank their instructors’ comments. Students reported that they were able to understand that we offered different types of comments, each with distinct purposes, because they were visually distinct in the margins of their papers.¹⁶ Moreover, students understood the relative importance of our comments. Because dissecting voluminous and uniform marginal comments is challenging for students, color-coding distinguishes visually higher-order concerns from lower-order concerns. When students made reference to writing style or mechanical issues in their self-assessments, their language clearly conveyed an understanding that these were lower-order concerns. For example, one student wrote in her self-assessment: “As for silly spelling and grammar mistakes, this has always been a weakness because I do not put enough emphasis on the editing process. I think it will help me if I print out my essay, read it aloud a few times, and really go through it with a fine comb to avoid these silly mistakes.” On the contrary, they also clearly understood argument and structure to be most salient; one student wrote on her self-assessment: “Before this

¹⁴ Somewhat unexpectedly, this overt alignment to keep the rubrics, writing workshops and stamps cleanly aligned forced us to be more focused and consistent.

¹⁵ It was also apparent that, in peer-reviewing sessions, students offered more pointed feedback. In past classes we both struggled to get students to be more hard-hitting and direct with their peers. We had chocked this up to their hesitance to criticize their classmates, but we have come to realize that some of their hesitation stemmed from the fact that they simply did not understand sufficiently the standards of assessment and thus were unable to marshal those standards in their evaluation of their peers’ work.

¹⁶ Although our papers had the same amount of marginal notes as prior papers, the systematization of the notes—and our explanation of the system—made it easier for students to navigate or, put differently, made it so that students were not overwhelmed (a common problem that plagues overly commented-upon papers; Monroe, 2002; Higgins, Hartley, & Skelton, 2002; Nicol & Macfarlane-Dick, 2006; Miller, Linn, & Gronlund, 2012).

class I spent a lot of time editing the spelling and grammar. I now know I need to spend that time on more important things like my argument.” This new ability to navigate comments has extended beyond our initial pilot program, with students reporting to us that, even after moving into courses that employ more traditional feedback, they are more easily able to parse and prioritize comments.

Third, students and the instructors were better able to identify patterns of writing strengths and weaknesses. In the past, when writing hand-written comments on papers, we did not flag every instance of a particular writing flaw. For instance, if a paper had weak transitions throughout, we would simply note the first instance and alert the student that this was a problem throughout (with a note that read something like “here and throughout” or “this is a pervasive problem”). With iAnnotate, however, the ease of the stamp feature allowed us to mark *every instance*. The repetition of stamps within a student’s paper—and still more the repetition across multiple assignments—alerted students to look beyond any given instance or beyond any given assignment to see more clearly the larger issues with their writing. One student, for example, remarked that he had never really paid attention to his transition sentences, or fully understood the impact they had on how the reader understood his (otherwise compelling and thoughtful) argument until he saw a barrage of orange “weak transition” stamps appearing all over his work. Here, the student not only identified a primary weakness, but also gained a greater understanding of how one structural element impacted the strength of his paper overall. As instructors, we noted that students who routinely received the same stamped comments on their first few assignments seemed to resolve these issues more quickly than students in the past. Taking the aforementioned student as an example, by the time he submitted his final paper outline, he was including rough transition sentences that he planned to refine in subsequent drafts.

The ability to see patterns of writing strengths and weakness was helpful not only for the students, but for the instructors as well. While consulting with students on an upcoming paper, we could glance quickly at the color-coded comments to be reminded of the areas on which students excelled and on which they needed work. We found this ability to track very quickly students’ strengths, weaknesses, and progress to save an inordinate amount of time¹⁷ and it made our conferences with students much more specific and productive.

Fourth, our feedback model allowed us to visualize the relationship between categories on our rubric, and thus between elements of writing. For example, a paragraph that was marked up with multiple comments in blue and green clearly expressed to students the connection between their presentation and analysis of evidence and the strength of their argument. By visually representing these two writing elements in tandem, students perceived how they were integrated and interdependent.¹⁸ For example, in her self-assessment one student connected one of her strengths as a writer (identifying strong and appropriate evidence) with one of her weaknesses (analyzing and leveraging that evidence to substantiate her argument): “Although I am able to choose evidence properly, I am weak at times at fully analyzing the evidence at the highest level of detail. At times I will make broad claims and fail to fully unpack these claims by analyzing more carefully my evidence, which is necessary to make a more thorough and persuasive argument in my paper.”¹⁹

¹⁷ Although most of the discussion about iAnnotate’s benefits in terms of efficiency have centered on the time saved during grading, we found the time saved reviewing prior papers to be far weightier.

¹⁸ We found it easiest to discuss these sorts of interconnections with students one-on-one. Some students, especially those with less preparation in writing, were focused on working on one or two writing issues and simply not ready to think about these more sophisticated interrelationships between elements of writing.

¹⁹ Again, this is evidence of a student adopting the language used in the rubric and stamps: “unpack this claim.”

Fifth, students began to understand and value feedback as more than merely justification of the grade. Because we placed an emphasis (early and often) on how to most effectively read and rank comments with an eye towards refining their arguments and writing, our feedback model functioned to reshape students' attitude toward feedback. Several students who admitted to rarely revisiting, much less revising, their written work in prior courses reported that our feedback model helped them view comments not as punitive remarks to be consumed once and then forgotten, but as a multi-layered conversation about their ideas and about their development as critical thinkers and writers. Other students, some whose prior instructors used the Microsoft Word's Track Changes feature to comment on their work, remarked that they began to see comments as more than edits to be "resolved" without further reflection on broader writing issues that transcended the particular assignment.²⁰

B. Practical Benefits.

The students responded positively to our feedback system not only because they learned about themselves as writers and were able to more quickly progress as writers, but also for more pragmatic reasons. They considered improved legibility and increased accessibility to be useful. Many students admitted that, in the past, they simply did not read comments when the handwriting was illegible and that they regularly misplaced hard copies of graded papers. Because iAnnotate obviated issues of legibility and made "losing" a paper an impossibility (even if the email containing the annotated PDF was deleted, another copy of their paper with full comments was just an email away), students had no legitimate excuse not to read their instructors' comments. In fact, even those students who claimed that our feedback model had not fundamentally changed the way they engaged with different types or kinds of comments noted that having all of their papers digitally accessible made them more likely to revisit their written work.

Further, iAnnotate streamlines instructors' grading workflow to maximize efficiency; the practical benefits are five-fold. First, is the portability and extended battery life of the tablet (the device on which most instructors use iAnnotate). Second, is the easy, paperless submission and return of student work, using iAnnotate's built-in ability to sync with Dropbox or built in email function. Third, toolbars can be customized to include the instructor's most frequently used tools and stamps and easily adapted to any course and/or paper topic. Fourth, integrating other free apps further facilitates the process (e.g., we used Dragon Dictation to dictate and transcribe the summative comments at the end of the paper; some devices, like the iPad 3, now offer direct dictation into iAnnotate). Finally, as noted above, quick accessibility to color-coded stamps makes it faster and easier to track students' writing problems and progress.

C. Issues and Troubleshooting.

Despite our overall satisfaction with our feedback model, we encountered three significant issues. First, some students had trouble remembering which colors corresponded to which category of the rubric when they did not have the rubric directly in front of them. When surveyed at the end of the semester, students suggested that we include a stamp at the top of every paper

²⁰ On Microsoft Word creating the impression of "teacher as editor," see Michael J. Faris' blog post, "Using iAnnotate to grade": <http://blogs.tlt.psu.edu/projects/ipad/2010/10/using-iannotate-to-grade.html>

that could function as a key to the taxonomy. iAnnotate would also allow instructors to easily insert the full, color-coded rubric at the end of each paper.

Second, we encountered some technical difficulties. Students noted that sometimes the colors were lost when they printed their annotated papers using campus printers whose default was black-and-white. Instructors should stress that students need to read comments electronically or need to print them in color. Another small group of students mentioned that, depending on the program they used to open the annotated PDF (e.g., Adobe Reader or Preview, iBooks, iAnnotate, DocsToGo), some colors were more legible than others. Before implementing this feedback model, instructors should investigate which colors and programs are most legible on the programs available at their institution and they should advise students to use those programs to read their annotations.

Finally, some students reported a lack of “personal touch” associated with the use of e-assessment tools. In our pre-semester survey, the vast majority of the respondents indicated that the majority of their written work in High School had been graded by hand (85%). On the survey several students remarked that, while they did not find any fundamental difference between handwritten and electronic comments in terms of content, they generally perceived handwritten comments to be more “personal” and they claimed to “connect” with it more despite issues of illegibility.²¹ As more than one of these students acknowledged, however, their preference likely also stemmed from the fact that they were simply accustomed to handwritten comments. Yet this perception is not insignificant as Chang et al. (2012) discovered that students’ perceptions of personable feedback is interconnected with their perceptions of quality feedback; in other words, students think that the care associated with taking time to hand-write comments correlates with students’ perception that caring professors offer higher quality feedback and thus they take that feedback more seriously.²² One way instructors might temper these concerns is to create handwritten comments (rather than text stamps) in iAnnotate by using a stylus though this might result in issues of illegibility, especially given complaints about the lack of precision of styli, and obviates the practical benefits of saving time for the instructor. Alternatively, instructors might also choose to use a new feature of the latest version of iAnnotate: audio comments. Instructors can pepper the paper with audio comments of up to 60 seconds each. In addition to mitigating concerns about “impersonal” feedback, audio files might also create a more expressly dialogic form of feedback (and could stand in for the collapsible balloons as we used them).²³

VI. Conclusions.

We found it interesting that the students who responded most positively to our feedback model were the strongest and weakest writers in terms of the elements of writing emphasized on our rubric. On the one hand, students who entered the course with a strong grasp on writing fundamentals reported that this feedback model helped them pinpoint very nuanced aspects of their writing (within broader categories) that needed improvement. On the other hand, our weakest students, who frequently self-identified as visual learners, found the feedback model especially well-suited to their learning style, enabling them to visualize their writing strengths

²¹ This finding corroborates student preferences for a “human aspect” to feedback found in Budge (2011) and students’ aversion to e-assessment because it is impersonal, as reported in Ferguson (2011), Scott (2006), and Morgan and Toledo (2006).

²² This study finds that students prefer e-assessment for its accessibility, legibility, and timeliness, while they value handwritten feedback as higher-quality because of its personability.

²³ On using iAnnotate’s audio feature to make grading more personal, see Doug Ward’s post on ProfHacker: <http://chronicle.com/blogs/profhacker/grading-with-voice-on-an-ipad/40907>

and weaknesses. Specifically, the color-coding enabled them to compartmentalize writing issues and to more systematically approach revisions, tackling one category at a time. So, in the end, we were surprised, yet pleased, to find that our feedback model addressed existing educational and learning inequities.

In addition to speaking to students with differing educational backgrounds and learning styles, we believe that this feedback model could be productively applied across courses, disciplines, and institutions within minimal adaptation. In our small liberal arts college environment, where class sizes are relatively small and there is a premium placed on the professor-student interaction, iAnnotate functioned to help enrich these interactions by focusing and concentrating our engagements around our learning objectives. The e-assessment tool kept students' and instructors' attention firmly trained on a limited set of writing elements and on students' development as thinkers and writers. When considering how this system might be applied to different courses or different institutional contexts, particularly those with much larger enrollments or those in which student work is graded by a rotating instructors or teaching assistants, the benefits of this feedback model become even more apparent. In particular, for the former, this model would enable instructors to offer more detailed feedback than would be ordinarily possible given the size of their classes. For the latter, this model would create coherent, unified standards that could be used by various graders, providing more consistency for students, thus improving the chance that students—now with a clearer sense of what is going wrong—could develop as writers.

Appendix A: List of customized stamps

| | |
|----------------------|--|
| Argumentation | interesting idea develop this idea further good, careful reasoning you need to make your reasoning more explicit you need to make explicit each stage/layer of logic in this argument imprecise reasoning unpack this claim strong thesis, complex argument refine your thesis your intro is lacking a thesis |
| Evidence | nice use of evidence you need to interpret/analyze your evidence you need to introduce your evidence this evidence isn't relevant to the point you are making insufficient evidence: add more/greater range to substantiate your point support this claim with evidence |
| Structure | strong transition weak transition clarify the point of this paragraph clarify how this paragraph contributes to your overall argument nice guidepost |
| Style | awkward prose well-written/nicely-put vary your word choice vary your sentence structure |

| | |
|------------------|---|
| | <p>unpack this sentence—too long, too many ideas this language is vague, specify does this word convey precisely what you mean? consider your audience</p> |
| Mechanics | <p>incomplete/improper citation citation needed proofread your paper sp.</p> |

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