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# Let's Review: Types of Feedback Given in an Agricultural Writing Intensive Course

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## Abstract

Our study sought to describe the types of feedback (affective, cognitive, and metacognitive) used by students of senior standing in a Writing Intensive Course within an undergraduate Agricultural Sciences degree. This study quantified a change in peer-review feedback over the course of an academic term. Students used each type of feedback throughout the duration of the course, but relied heavily on affective and cognitive feedback (63% and 80% of combined feedback between both categories in initial and final feedback, respectively). Further efforts are necessary to provide direction and rigorous evaluation in the writing intensive course. Continued research is necessary to examine instructional strategies in place and to provide a more thorough evaluation of the peer feedback structures in place. Efforts to understand the benefits of quality peer feedback as a critical component of the revision process should facilitate effective practice in writing courses within agriculture and agricultural education across the country.

## Introduction

Employers and the media call for college graduates to be effective communicators (Fischer, Meyers, & Dobelbower, 2017; White, 2015), yet 85% of students across disciplines are at a basic writing level (Cho & Schunn, 2007). Written text serves as the end-product in

many organizations (Brandt, 2005) and students' ability to produce quality written work is related to success in the workforce (Leggette, 2015) which presents an impetus for students to become competent writers. Geiser and Studley (2001) posit students' competence in writing serves as the greatest predictor of success during their first year of undergraduate course work.

Universities are adopting Writing Intensive Courses (WICs) to increase student-writing skills. Although institutions may differ in requirements, WICs commonly comprise a small student-teacher ratio, involve a required amount of writing, focus on revision, and apply writing techniques (Grauerholz, 1999). At Oregon State University required WICs are discipline-specific to prepare student writers for future careers within their field ("WIC Learning Outcomes," 2011). A common technique utilized in WICs is feedback through peer reviews.

Researchers identify revision and rewriting from feedback as critical to improve writing (Schriver, 1990; in Cho & Shunn, 2007). However, the time required to provide quality feedback on student writing is challenging for instructors (Kellogg & Raulerson, 2007). A solution is the inclusion of peer reviews, "...an instructional method which requires learners to specify the quality of a product ... or to evaluate the performance of other similar-status learners," (Cheng, Liang, & Tsai, 2015, p. 78). Peer reviews

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alleviate the burden of exclusive provision of feedback from instructors, while also providing additional advantages. Including peer review provides writing practice, cultivates content knowledge, builds community, and alleviates instructors' feedback load (Cho & Schunn, 2007; Ertmer et al., 2007). However, peer reviews also present challenges for students including anxiety, reliability, limited activation of critical thinking, and the possibility for inaccurate feedback (Cho & Schunn, 2007; Ertmer et al., 2007). Without feedback, though, students surrender opportunities to improve their writing (Cho & Schunn, 2007).

There is evidence the advantages of utilizing peer review in a WIC eclipse the potential challenges, although previous research indicates the quality of feedback provided by students in peer reviews varies (Cheng, Liang, & Tsai, 2015). Students may be unfamiliar with how to compose helpful reviews and receive no training on how to do so (Cho & Schunn, 2007). Instructors in WICs utilizing peer reviews should support students in contributing exemplary feedback and continually analyze their courses for effective feedback among their students.

Within our own practice, we identified the challenges associated with facilitating peer review. We had to learn to give feedback on writing and subsequently model constructive feedback to our students. Our students wrestled with the reciprocity of feedback, potentially having given constructive feedback to a peer while receiving little in return. We also spent much of our review time focusing on the logistics of facilitation; using our learning management system, supplying rubrics, maintaining anonymity, and the like, rather than focusing on the quality of peer review. These challenges guided our study as we sought to understand current types of feedback employed during the peer review process to inform instructional practices using learning activities as the basis for our analysis.

We grounded our study in the work of Cheng et al. (2015) and utilized learning activities as a framework for our analysis. We employed Vermunt's (1996) definition of learning activities as "...ways in which students learn," (p. 25) and classification of activities into the affective, cognitive, and metacognitive categories. Affective learning activities focus on feelings (positive or negative) present during learning, cognitive activities revolve around processing knowledge, and metacognitive learning coordinates the affective and cognitive activities which result in new ideas (Vermunt, 1996). Prior studies of peer reviews have applied qualitative methods to examine feedback messages utilizing the three categories of learning activities to explore which types of messages used by peer reviewers and those that impact learning. Lu and Law (2013) found cognitive messages as the most utilized by secondary students, while affective messages were given more frequently by university students (Cheng & Hou, 2015; Tsai & Liang, 2009) and older students used metacognitive comments more often (Chen & Tsai, 2009). All three categories were identified as leading to increased engagement or performance, however, differences were found based on the type of cohort. In a review of research on feedback, metacognitive feedback led to improvement for a cohort of teachers (Chen & Tsai, 2009) and cognitive messages led to increased engagement for

students feedback (Hattie & Timperley, 2007). Interestingly, affective messages were positively correlated for secondary students (Tseng & Tsai, 2007), while being negatively correlated to undergraduate student performance (Cho & Cho, 2010). Given challenges in our practice of facilitating peer reviews, along with the knowledge of the impact of types of peer reviews messages, we sought to understand the types of feedback our students were providing to each other during peer reviews.

## Research Questions

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The purpose of our study was to describe the types of feedback used by students in an agricultural WIC. The following research questions guided the study:

- To what extent are Agricultural Science students at Oregon State University using affective, cognitive, and metacognitive feedback?
- How does the frequency of affective, cognitive, and metacognitive peer review feedback change over an academic term in a writing intensive course?

The purpose of this study also aligns with NACTA mission statement, item two:

- Seek improvement in the post-secondary teaching of agriculture through examination and discussion of courses and curricula, teaching and testing techniques, facilities and materials.

## Methods

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We utilized a content analysis to describe the types of feedback from students during peer review. According to Leedy and Ormond (2016), "A content analysis is a detailed and systematic examination of the contents of a particular body of material for the purpose of identifying patterns, themes, or biases," (p. 257). The participants included all 13 students enrolled in an on-campus agricultural WIC. The class used an iterative feedback process over ten weeks to develop a final writing product. Students provided peer reviews during each of the ten weeks of the course. We utilized feedback from the full rough draft peer review conducted during the first week of the term and the second full draft peer review conducted during the tenth week of the term for our study. The Oregon State University Institutional Review Board approved the study protocol and all participants provided written informed consent prior to participation in the study.

A content analysis decomposed feedback from peer reviews into individual statements for initial analysis. Using the coding scheme from Cheng et al. (2015), individual statements were first coded as "affective," "cognitive," "metacognitive," or "irrelevant" before being assigned a sub-code. Affective feedback focused on feelings and included two sub-codes, supporting and opposing comments. Supporting comments included those containing support or praise, while comments showing negative feelings about the work were classified as opposing comments. Cognitive

feedback reflected the ways the reviewer processed the content of the writing. It can be offered as a direct correction, personal opinion, or as guidance. Direct correction contained messages which focused on the assignment requirements or technical aspects of writing. Personal opinion were comments of general advice or thoughts without input regarding revisions. Feedback messages coded as guidance encompassed comments with concrete suggestions, concepts, or approaches to improve the work. Metacognitive feedback demonstrated thinking about the previous two domains toward the evaluation of and reflection on the writing under review. Evaluation feedback messages comprised comments about verification of knowledge, skills, or strategies, while reflection comments challenged the writer to think. If feedback that did not fit these three domains was offered, it was coded as irrelevant (Cheng, et al., 2015). Both researchers coded 351 statements to validate the coding scheme, and a 6% difference was reconciled. Analysis of compiled coding used descriptive statistics to identify the differences in frequencies between the rounds of peer review. Additional statistical analyses are outside the objectives of our study.

## Findings and Discussion

Of the 351 feedback messages, 143 were associated with the first draft and 208 with the second draft. One student did not complete a review of the second draft. Table 1 shows initial and final feedback by category and subcategory. “Supporting” feedback (affective) was present most frequently in both the first and second round of peer review (n = 44, 31%; n = 84, 40%). “Personal opinion” (cognitive) was the second most frequent for both rounds (n = 33, 23%; n = 55, 26%). The lowest feedback type given in both rounds was “negative” (affective) (n = 2, 1.4%; n = 2, 1%).

Affective feedback (supporting and negative feedback) was most commonly present in both rounds of peer review. Statements included, “This would be an amazing project to complete” and “I really enjoyed how clear your writing was.” Cognitive feedback messages (direct correction, personal opinion, and guidance) were found the next most frequently. Messages in the cognitive domain captured thoughts such as, “I feel that this could be elaborated upon some more,” and “I would try to find more citations/data for this section.” Metacognitive feedback accounted for approximately 14% (average between both feedback rounds) of the feedback given. Examples of metacognitive feedback included, “You probably already know this, but grapes don’t ripen until, like, August or September, so where will they get the grapes?” and “Will the participating farmers be paid for their time or produce?” The only feedback type that substantially decreased between rounds of peer review was “irrelevant” feedback (decreased 15%). Feedback in the irrelevant domain captured side conversations or offers, such as, “Let me know if there is anything I can help with!”

## Conclusions

Our study sought to describe the types of feedback (affective, cognitive, and metacognitive) used by seniors

	Initial Feedback (n = 143)		Final Feedback (n = 208)	
	n	Percent (%)	n	Percent (%)
<b>Affective</b>	46	33	86	41
Supporting	44	32	84	40
Negative	2	1	2	1
<b>Cognitive</b>	43	30	82	39
Direct Correction	0	0	12	7
Personal Opinion	33	23	55	26
Guidance	10	7	13	6
<b>Metacognitive</b>	22	15	26	13
Evaluating	12	8	12	6
Reflecting	10	5	14	7
<b>Irrelevant</b>	32	22	14	7

in a Writing Intensive Course within an undergraduate Agricultural Sciences degree. In addition, we quantified a change in peer-review feedback over the course of an academic term. Students used each type of feedback throughout the duration of the course, but relied heavily on affective and cognitive feedback (63% and 80% of combined feedback between both categories in initial and final feedback, respectively), which relates to prior findings on the most common types of feedback given by students (Cheng & Hou, 2015; Lu & Law, 2013). Increases in both of these categories of feedback may be a result of the increased amount of feedback rather than a substantial change in directing messages to peers over the course of the term.

Our study informs our practice as we ask students to write in agriculture. Students offered limited negative and direct correction feedback to their peers. While students may see the value in this type of feedback for their own writing, they seem hesitant to provide constructive feedback to others. Cho and Shunn (2007) identified peer review as a means to improve writing, allow additional writing practice, and as an aid toward developing content knowledge. However, little writing improvement can occur if students are not constructively critical of their peers’ work. In addition, current anecdotal evidence suggests underdeveloped peer review equates to a waste of time as students focus solely on instructor review toward making revisions. Cheng, Liang, and Tsai (2015) conclude feedback in the cognitive domain is most effective toward the revision process. To that end, supplementary efforts are necessary to integrate supports within the curriculum to encourage cognitive feedback at critical stages of the writing process.

In addition to informing our practice, our study offers questions to answer through research to further our practice as well. Our study serves as the first evaluation of feedback in communication coursework within a WIC in this department. Further efforts are necessary to provide direction and rigorous evaluation in this WIC. These efforts should work to develop strong peer reviewers. Given the emphasis on revision in the course evaluated, additional work is necessary to ensure revisions based on peer feedback can be effective. This aligns with an industry call for effective communicators (Fischer, Meyers, & Dobelbower, 2017; White, 2015). Continued research should examine instructional strategies in place and provide a more thorough evaluation of peer feedback structures. Furthermore, efforts should focus on peer feedback in different course settings (distance courses compared to on-campus). Finally, additional studies may seek to clarify the role peer feedback plays in the revision process toward developing writing ability based on feedback. Efforts to understand the benefits of quality peer feedback as a critical component of the revision process should facilitate effective practice in writing courses within agriculture and agricultural education across the country.

### Implications

Our analysis and conclusions have subsequently and iteratively impacted our teaching practice. In the time since our initial analysis, presentations of this research have led to productive conversations informing our practice and the practice of those with whom we've interacted. First, our analysis has allowed us to move beyond the logistics of review to a focus on justifying the purpose of peer review to our students. The justification advances peer review as a means to improve writing, both through receiving correction and through evaluating someone else's writing and applying that evaluation to one's own work.

Feedback modeling has also instigated questioning in our practice that has allowed us to consider the purview of feedback. If we know our students are offering affective and cognitive feedback, perhaps it is most productive for instructor feedback to focus on the metacognitive and constructive feedback. Continued discussions inform our practice as we seek the best ways to offer feedback and reflect on our own practice.

Finally, as students discuss the use of feedback provided, we see evidence of frustration in using the feedback provided by peers. Thus, in our own practice, we must take feedback beyond the mere giving and receiving, but provide resources to students that allow them to use the feedback they receive. For example, if we know students will give largely affective and cognitive feedback, we can reflect with our students on the implementation of that feedback relative to finding writing support and challenging their own conceptions presented in their discussion of their content.

### Summary

Students give feedback in the affective (supporting) and cognitive domains, but expect feedback in the affective (negative) and metacognitive domains. Our work informs

our practice in giving feedback and helping students reflect on the feedback given and received in the peer review process.

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