Chapter 3. Cognitive Presence: Peer Review Learning Goals and Application

In this chapter, we consider the extent to which our student participants experienced *cognitive presence* within their peer-review workshops. We first examined interview data to determine student and instructor perceptions of the purpose of peer review. This step was important because it established what learning was expected before we attempted to measure if that learning occurred. We then analyzed students' drafts, peer feedback, and revisions for potential evidence of *cognitive presence*. Using Dewey's (1910) model of practical inquiry, we looked for *triggering events* in the feedback students received from peers, and we looked at the revisions students made between drafts for evidence of *resolution*; when we found correlations between feedback and revision, we concluded that students had experienced sufficient *exploration* and *integration* for the peer-review workshop to function as a community of inquiry. These findings indicate that *cognitive presence* has the potential to be realized during the peer review process when students read their peers' essays, interact synchronously and/or asynchronously to provide feedback, and/or apply feedback when revising.

History and Theory of *Cognitive Presence*

In a community of inquiry, *cognitive presence* is the end goal; it occurs when *teaching presence* creates an environment that facilitates sufficient *social presence* to enable collaborative learning and knowledge co-construction. In such a community, students learn *from* and *because of* one another. The original CoI researchers (Garrison et al., 1999) operationalized the concept of *cognitive presence* via Dewey's (1910) four-phase model of practical inquiry: *triggering event exploration*, *integration*, and *resolution*. Figure 3.1 is a simplified approximation of Garrison et al.'s (1999) visual of Dewey's model.

Triggering events initiate the learning process, guiding students to engage in *exploration*. As students share the results of their *exploration* with peers, they begin to experience *integration*, which requires their understanding of a concept to shift in response to the knowledge others have shared. *Resolution* is the culmination of this process when students demonstrate or apply their newly constructed knowledge. The process is iterative and non-linear, with learners shifting between the four phases as they engage in both individual and collaborative thinking.

Much of the previous research on *cognitive presence* has involved coding asynchronous discussion forums for the four phases of practical inquiry (e.g., Alwafi, 2022; Joksimovic et al., 2014; Rolim et al., 2019), and/or utilizing the

CoI survey (Swan et al., 2008) to examine the relationship between *cognitive presence*, the other presences, and factors such as perceived/actual learning and student satisfaction (e.g., Martin et al., 2022; Shea & Bidjerano, 2009; Wertz, 2022). Across this literature, scholars have consistently offered evidence for the role of *teaching presence* in facilitating *cognitive presence* (Moore & Miller, 2022). When activities are deliberately designed to lead students through the four phases of practical inquiry, learners are more likely to experience *cognitive presence*.

CoI research has produced more evidence of the first three phases of practical inquiry than of the fourth phase, *resolution* (Akyol & Garrison, 2011; Moore & Miller, 2022). Scholars have often speculated that *resolution* has not been evident because the design of the activities (primarily discussion forums) has not required or invited *resolution*. Accordingly, CoI researchers have looked for resolution in final course projects (Kim, 2016), and/or have recognized that it may not occur until after the course is complete (Galikyan & Admiraal, 2019). Writing studies scholarship on learning transfer has provided ample support for this latter point, emphasizing *resolution* via transfer to other classes (Downs & Wardle, 2007) and to professional settings (Brent, 2011). Peer review, with its focus on students learning from one another and incorporating that learning into writing revisions, may hold more potential than other types of activities (like discussion forums) for *resolution* within the course itself.

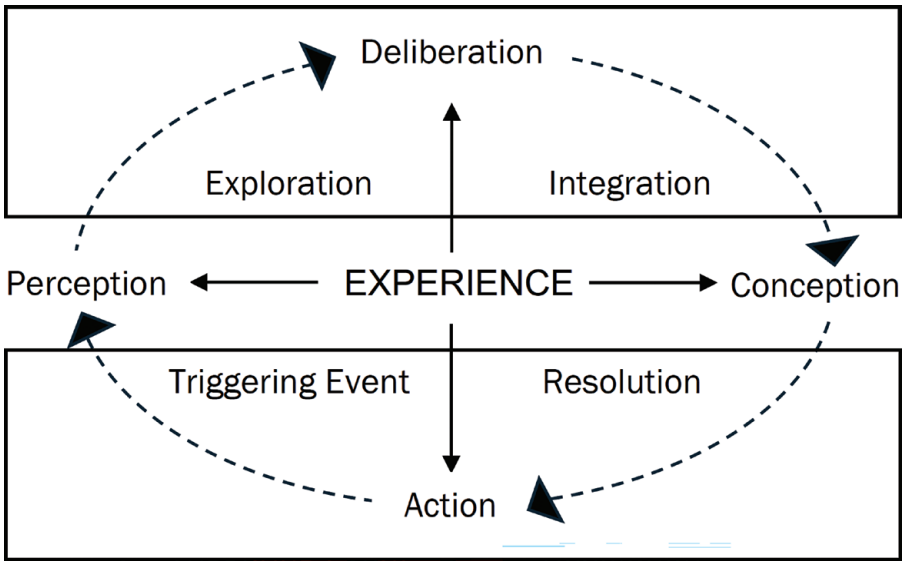


Figure 3.1. Dewey's Model of Practical Inquiry. Adapted from Garrison et al. (1999).

Contributing to both CoI and writing studies scholarship, our project's examination of peer review offers a unique opportunity to study *cognitive presence*. When a peer-review workshop functions as a community of inquiry, students encounter a range of potential *triggering events*, including the giving and receiving of feedback. The feedback they receive, and/or the process of giving feedback to peers, can prompt an *exploration* of their own prior and emerging knowledge of writing concepts (e.g., argument structure, paragraph focus, transitions between ideas) as well as their knowledge of their own and their peers' chosen writing topics. When students begin the process of making decisions about how to revise in response to the peer-review workshop, they experience *integration*; they negotiate multiple perspectives (their classmates', their own, and, sometimes, their instructor's) and construct new knowledge. Finally, they can achieve *resolution* within and after the workshop when they apply this new learning to produce a final draft or to articulate what they have learned from reading their classmates' essays; they also can achieve *resolution* outside of the peer-review workshop if they apply what they have learned to other assignments, classes, and contexts. Unlike many of the discussion forums that have been the focus of prior CoI research, the nature of peer-review workshops creates an opportunity for students to experience all four phases of practical inquiry. Our study specifically focuses on *cognitive presence* that occurs when students revise in response to feedback, demonstrating that peer feedback can function as a *triggering event* that prompts sufficient *exploration* and *integration* to result in revisions that demonstrate *resolution.*

Anticipated *Resolution:* Beliefs About Learning from Peer Review

Before looking for evidence of *cognitive presence* in students' drafts and revisions, we analyzed student and instructor interview statements about the purposes of peer review. Our goal was to learn what students and instructors believed should be the outcome or *resolution* of peer review. We operationalized *resolution* as *learning*, which Dewey (1910) and CoI scholars (Garrison et al., 1999) have defined as applying newly constructed knowledge. In our study, we examined *resolution* in a final product (e.g., revising in response to feedback); other studies might look for *resolution* elsewhere, such as in a reflective document demonstrating an evolving understanding of writing or of the self as a writer.

This section reports on what instructors in our study said was the purpose of peer review, including what they believed or hoped their students would gain and what students said they learned from peer review during synchronous and asynchronous activities. We identified six prevailing categories that suggested what these nine instructors and 20 students believed were anticipated *resolutions* of peer review. Figure 3.2 visualizes those six categories and the number of instructors and students who mentioned each.

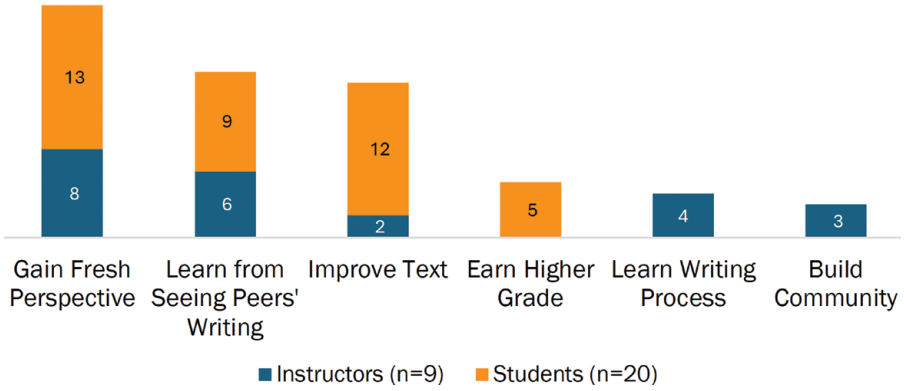


Figure 3.2. Anticipated Resolutions from Peer Review.

The stacked bar chart in Figure 3.2 depicts how many students and instructors mentioned the six anticipated resolutions from peer review: *gain fresh perspective* (mentioned by 13 students and eight instructors); *learn from seeing peers' writing* (mentioned by nine students and six instructors); *improve text* (mentioned by twelve students and two instructors); *earn higher grade* (mentioned by five students and no instructors); *learn writing process* (mentioned by no students and four instructors); and *build community* (mentioned by no students and three instructors).

Three categories were mentioned by both instructors and students, and three categories were mentioned by only instructors or students. While this chapter will focus on the categories mentioned by both groups, we include the three less frequently mentioned categories to demonstrate the potential disconnect between student and instructor expectations: only students mentioned earning a higher grade, and only instructors mentioned learning about the writing process and building community.

The most anticipated *resolution* from peer review was *gain fresh perspective*. With eight instructors (out of nine) and 13 students (out of 20) mentioning this category, this outcome seemingly was equally apparent to students and instructors. Both students and instructors characterized *gain fresh perspective* as encountering new ideas or different opinions, but six instructors further discussed this category in relation to students receiving feedback beyond their instructor. For some instructors, receiving feedback beyond the instructor additionally served as a strategy to divide or share labor.

Learn from seeing peers' writing was the next most anticipated *resolution*, with six instructors and nine students discussing this outcome as something gained from participating in peer review. Instructors and students both described this benefit by explaining that seeing their classmates' texts helps students with their own topics and self-assessment. Students also mentioned comparing their essays to their peers' essays for more practical purposes like formatting.

The third most anticipated *resolution* was *improve text*, with two instructors and twelve students discussing this category during their interviews. Unsurprisingly, nearly half of the students interviewed articulated that improving their text was a purpose of peer review. For instructors, "improvement" necessitated rethinking and rewriting, suggesting that peer review creates opportunities for improving texts via feedback and revision. For students, however, "improve text" translated to a better final product and to meeting requirements like word count.

In addition to the three most anticipated *resolutions* from peer review, a few of the participants in our study mentioned *earn higher grade*, *learn about writing process*, and *build community*. *Earn higher grade* was mentioned by five students and no instructors, while *learn about writing process* was mentioned by four instructors and no students, suggesting a possible disconnect between what students and instructors regard as a more important outcome of peer review: product or process. Students tended to point to earning a higher grade, whereas instructors pointed to helping students learn that writing is a process. Another concept mentioned only by instructors (n=3) was *build community*. This suggests that while instructors saw creating a sense of community as valuable to students' learning, students might have viewed community as more of a means to an end—again demonstrating the different focus between product (for students) and process (for instructors). Combined with the differences in student versus instructor definitions of "improve text," this data suggests that instructors might intend for the *exploration* and *integration* that leads to *resolution* to be more robust than what students who focus on word count or grades might expect.

Anticipated *Resolution* in the Case Studies

In what follows, we take a closer look at the three most anticipated resolutions from peer review—*gain fresh perspective*, *learn from seeing peers' writing*, and *improve text*—and how they featured among our case studies with Sofia, Sarah, Quinn, and their students. Our participants' three most anticipated resolutions from peer review, as well as examples of how our case study instructors and students understood and interpreted those concepts, are included in Figure 3.3.

This chart includes four boxes along the left, with one box for instructors and one box for each of the three instructors' respective students (Sofia's students, Sarah's students, and Quinn's students). Across the top of the chart are the three anticipated resolutions (*gain fresh perspective*, *learn from seeing peers' writing*, and *improve text*), and the middle of the chart contains information about how the instructors and students interpreted each outcome, details about which follows. For example, instructors Sofia and Quinn understood "gain fresh perspective" as "feedback beyond instructor" and students Jake, John, a Jane understood "improve text" as connected to "word choice."

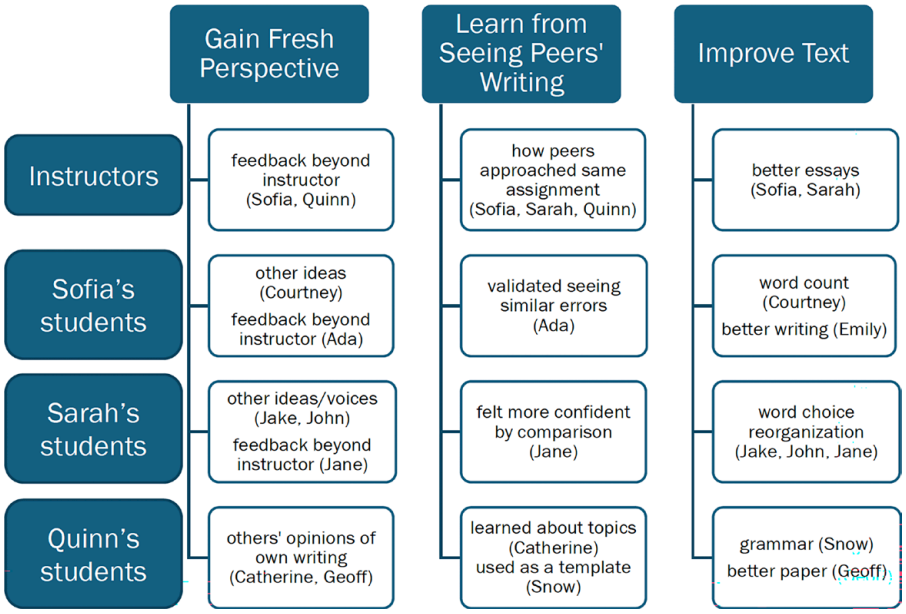


Figure 3.3. Anticipated Resolutions: Case Studies.

Gain Fresh Perspective

Most of the case study participants noted that the process of receiving feedback came with the benefit of gaining a fresh perspective. Articulating a common sentiment among students, Catherine, in Quinn's class, said, "I like to see what other people think about my writing, because … when I'm reading it, it makes so much sense to me because it's coming from my head …. But … I just like to see if what I'm writing actually makes sense."

Similarly, in Sarah's class, both Jake and John discussed gaining a fresh perspective. John shared in his interview, "Whether I use that opinion or not, it's nice to get someone else's, you know, ideas and thoughts on your paper." Jake commented similarly: even though he maintained that his classmates weren't his intended audience, he said, "I think it's always helpful to get other people's perspectives." Sofia's student Courtney also mentioned receiving "new ideas" from readers and explained the usefulness of incorporating what Sofia called an "author's note" in guiding peer feedback, saying, "When you have an author's note, they really try to pay attention to what you, what the writer thinks they need help with." This emphasis on others' perspectives indicates that the participants in this study viewed peer review as an opportunity for *resolution* that explicitly involves both *exploration* and *integration*.

For most participants, the *exploration* and *integration* that led toward the *resolution* of *gain fresh perspective* was concretely connected to the peer doing the

review—the writer's *exploration* and eventual decisions about *integration* focused on how to revise based on this specific reader's engagement with their text. For Quinn, an instructor, *fresh perspective* was also associated with the broader concept of audience, revealed by her comment that "the big focus of the course is knowing your audience and understanding how your essay looks to an audience." Quinn's student Geoff concurred, explaining, "If I write something, I think, like, 'it's good.' But if someone else were to read it, they'd obviously find, like, certain things that you wouldn't, like, pick up on." Quinn also implied that the most important audience was the instructor and that part of the goal of peer review was to prepare the paper for that audience: "This is a great way for students to see what does their paper look like before an audience—before the instructor reads it." From this perspective, *resolution* not only involves making revisions that will address a specific reader's comment but also making revisions that will positively impact future readers (such as the instructor).

The importance of gaining a fresh perspective was prominent among these instructors and their students and demonstrates how the first three phases of *cognitive presence* create a path towards *resolution*: receiving feedback (*triggering event*) can result in the benefit of new ideas and different opinions (*exploration*/*integration*), which can lead writers to revise their draft in specific ways (*resolution)*. In the latter part of this chapter, we'll look for evidence of that *resolution* in students' revisions between drafts, but it's important to note that evidence of *resolution* can also exist in more process-oriented documents like reflective cover letters.

Learn From Seeing Peers' Writing

In addition to benefiting from receiving feedback, instructors and students also described the process of giving feedback, which facilitated the anticipated *resolution* of *learn from seeing peers' writing*. During the interviews, each of the three instructors discussed that the purpose of peer review was for students to see their peers' writing strategies and how their peers were approaching the same assignment. For example, Sofia explained,

> They look, and they're like, "Whoops, I forgot to do that," or they noted discrepancies between their paper and another paper, right? "Oh, I forgot to put a Works Cited, "you know, and that's a simple example. … So, they think about writing, they think about concepts that we want them to think about, without using the big words that English professors use: flow and cohesion and thesis statement, you know? Yeah, they apply the concepts without realizing that they are applying the concepts, and they see—again, I go back to, they see how other students, other writers, accomplish a particular goal, writing.

Quinn discussed the benefit of learning from peers in similar ways, explaining that the opportunity for her students to see their classmates' writing "helps to relieve some pressure" because "they can understand how other people have approached their assignments," including "where they're at in their writing process," "how they're formatting their arguments," and how they are "communicating with their audience." This was certainly the case for her students Geoff and Snow. Geoff said, "You're not comparing, but, like, you're seeing how … other people write. … I guess you're seeing how, like, yeah, in a sense, like, you're comparing your paper to another paper, just seeing if, like, you feel like you need to go more in-depth into something." Snow similarly explained, "After I read their essay, I know the general structure of the essay, so it can help me improve my essay." Snow additionally noted that as an international student, she especially appreciated the opportunity to learn from seeing her peers' work because "they grew up here … so they are more familiar with such format. So, I think it helps."

Among these students and instructors, *learn from seeing peers' writing* tended to create *triggering events* both practically and conceptually. Practically, students thought about their own writing in comparison to their classmates' writing, and conceptually, they considered reading about other perspectives, ideas, and topics in their classmates' writing. These *triggering events* created opportunities for *exploration* as they compared others' drafts with their own writing. This process can result in opportunities for *integration* and *resolution* for students who decide to make changes to their essays based on what they saw in their peers' essays. If we were to look for that *resolution* in more process-based documents written by these students, it might manifest as a shifting understanding about their writing process or their identity as writers based on what they saw in their peers' drafts.

Improve Text

The final *resolution* most anticipated by the participants in this study was *improve text*. Quinn connected the idea of improving a text to the role of audience in peer review, noting, "The draft workshops are really helpful in being able to have someone who has not done this particular research be able to say, 'Okay, this area is a little bit confusing. I think that this paragraph needs to come earlier because this answers the question I had earlier several paragraphs ago,' things like that." For Sarah and Sofia, an "improved text" was synonymous with "better essays" overall. Emily in Sofia's class and Geoff in Quinn's class echoed this sentiment, describing how feedback resulted in a "stronger paper" or improved writing more generally.

Other students were more specific. Courtney in Sofia's class said, "I was a little short on the word count that I needed, and the student gave me a few ideas." Snow in Quinn's class considered an "improved text" one with fewer grammar mistakes following feedback from classmates whose first language is English: "I like the grammar comments because it's a really helps me a lot …. I will make some

changes because some of my classmates' comments is good and is right because those is really some mistakes in my grammar so I will change it."

None of Sarah's students explicitly mentioned improving their written products during interviews. However, in our observation of their peer workshop, we witnessed the students make recommendations for expanding or reorganizing paragraphs, which suggests that they may have given and received feedback related to *improve text*, even if they didn't describe it in the interviews. For example, Jake pointed out paragraphs in Jane's essay that she could consider reorganizing:

> You talked a lot about the effects of sleep deprivation and habits in youth, but just about every paragraph starts with that but then the paragraph was actually about something else. So, you're using the youth as a lead-in for some other topic, and it would be more beneficial to focus on the youth in part of the paper and the effects of it in youth. And then when you bring into your next key points, focus on that key point and tie it in. … It's just, again, because of the structure of the organization, it's not necessarily where it should be to support the points you're making in the paragraph.

John agreed with Jake and reiterated that Jane should work on reorganizing paragraphs, saying, "But you also talk about young people over here and over here and in between …. So, I feel like maybe this paragraph could go in front of this."

Our case study participants' explanations of the goals and purposes of peer review illustrate how the phases of *cognitive presence* can lead toward *resolution*. In the case of *gain fresh perspective*, feedback from peers and/or instructors (*triggering event*) prompts students to reflect on their writing (*exploration*), which can lead to a re-envisioning of the draft or a re-imagining of their writing process (*integration*) that culminates in revision or in a new understanding of a writing concept (*resolution*). The triggering event for *learn from peers' writing* is different—in this case, the phases of *cognitive presence* are instigated by reading and responding to peers' writing. From there, the process is similar: students experience *exploration* if reading their peers' writing prompts them to reflect on their own written product or writing process or understanding of writing concepts. If this reflection prompts them to change their perspective or revise their draft, then they are experiencing *integration* that leads to *resolution*. The *resolution* of *improve text* could be prompted by either receiving feedback or reading peers' drafts, though most participants in our study characterized receiving feedback as the primary triggering event for *improve text*. The processes of *exploration* and *integration* are similar to those for *gain fresh perspective* and *learn from peers' writing*, but the *resolution* is much more product-oriented, characterized by specific revisions to the draft.

In the following section, we discuss when we saw *resolution*—evidence of *cognitive presence*—as a result of peer review. We do so by analyzing the meaning- and surface-level feedback students offered and received as well as the revisions

they made to their drafts. Our goal is to determine whether peer review *can* function as a community of inquiry, in which students experience all four phases of practical inquiry, including *resolution*. At this stage in the book, we do not differentiate between the type of *resolution* (i.e., *gain fresh perspective*, *learn from seeing peers' writing*, *improve text*). Please see Chapter 5 of this book for a discussion about whether course design created an environment where those specific *resolutions* were likely to be achieved. We also acknowledge that seeking evidence of *cognitive presence* in student revisions limits us to a particular version of *resolution*; other researchers might seek evidence through student reflections or other articulations of what they have learned from the process of peer review.

Evidence of *Cognitive Presence* in Feedback and Revision

The previous section described the anticipated *resolutions* of peer review that students and instructors articulated in their interviews. While *resolution* may take many forms, including developing a writing process or learning about writing concepts or transferring knowledge about writing beyond the FYW classroom, the most observable form of *cognitive presence* in our data is revision in response to feedback. This section first describes the *meaning-level* and *surface-level feedback* students received and the revisions they made between the draft they submitted for peer review and the final draft they submitted to the instructor. We then triangulate this data to reflect on the extent to which the revisions correlate to peer feedback. In the language of CoI, we analyze the extent to which peer feedback functioned as a *triggering event*, prompting *exploration* and *integration*, and culminating in *resolution* via revision.

Meaning- and Surface-Level Peer Feedback

Throughout this section, we differentiate between *meaning-level* and *surface-level feedback* (Baker, 2016; Faigley & Witte, 1981; Sommers, 1980), primarily because the case study participants did so in their interviews. For example, Quinn's student Geoff explained in his interview that he received different types of feedback from his peers, saying, "So, one helps me, like, Catherine, I guess, she more so, like, stays away from grammar, and she kind of helps with, like, analysis, point of view." In contrast, Snow is "more geared towards grammar. She helps me with my grammar." When asked if he preferred one type of feedback over another, he responded "no" and said, "they both work together pretty well, and so it helps." While both *meaning-level* and *surface-level feedback* and revision can result in the four phases of *cognitive presence*, our data suggests that *surface-level* revisions often require less critical thinking and problem solving, which leads us to suspect that *meaning-level* feedback is more likely to facilitate community inquiry.

All nine students received at least one piece of *meaning-level feedback* from their classmates. The majority of students (eight out of nine) also received at least

one piece of *surface-level feedback* from peers. To produce this feedback, Sarah's students worked in groups of three, providing one another with verbal feedback in a face-to-face workshop. Quinn's students also worked in groups of three, with each receiving feedback from two peers in the form of direct edits, marginal comments, and an endnote written at the end of the peer's draft. Sofia's instructed her students to email one peer in their group of three with three suggestions on how to improve the essay, and they had the option of also providing their peers with marginal comments and/or direct edits. Sarah and Quinn's students revised their work in response to peer feedback before submitting the draft for instructor review; Sofia's students received peer and instructor feedback simultaneously, which they used to revise and resubmit their drafts for the instructor's final assessment. See Chapter 5 for more details about the workshop design and facilitation.

Meaning-level feedback that the students received is summarized and organized by instructor in Figure 3.4. The most common type of *meaning-level feedback* involved comments that requested the writer to *expand/explain*, followed by comments focused on *overall argument*, *praise*, *paragraph focus/organization*, and *source integration*.

This chart depicts how many students from Sofia's, Sarah's, and Quinn's course sections received five types of *meaning-level feedback*: *expand/explain* (nine comments from Sofia's students, four comments from Sarah's students, and six comments from Quinn's students), *overall argument/point* (two comments from Sofia's students, five comments from Sarah's students, and seven comments from Quinn's students), *praise* (four comments from Sofia's students, three comments from Sarah's students, and seven comments from Quinn's students), *paragraph focus/organization* (nine comments from Sofia's students, three comments from Sarah's students, and no comments from Quinn's students), and *source integration* (two comments from Sofia's students, one comment from Sarah's students, and two comments from Quinn's students).

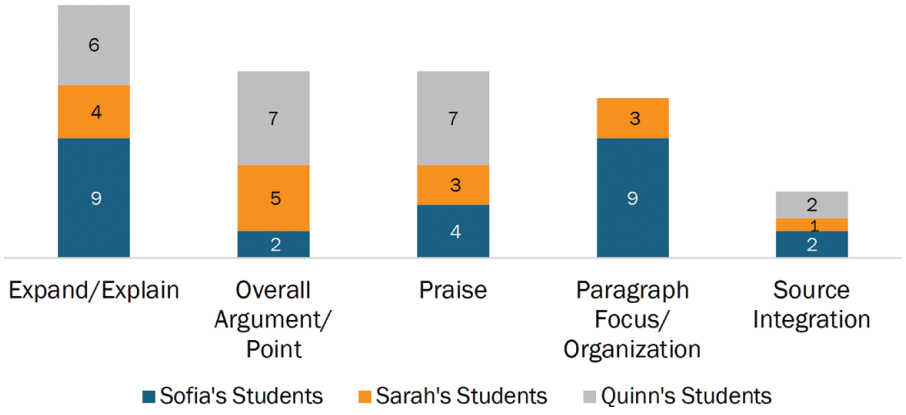


Figure 3.4. Frequency Counts for Meaning-Level Feedback in Each Case Study.

Table 3.1 offers more details about the *meaning-level feedback* categories by defining the categories and sharing examples.

Table 3.1. Meaning-Level Feedback Definitions and Examples.

Feedback	**Definition**	**Example**
Explain/ extend	Peer suggests that the writer further explain or clarify their ideas or that they add information to a particular section or paragraph.	Marginal Comment: "What are the different effects? Explain them so the reader can understand the controversy of the issue"
Overall argument/ point	Peer suggests that the writer strengthen their overall argument by stating it directly or connecting a particular idea/paragraph to the overall argument.	Workshop Discussion: "So your thesis is not very clear. You're talking about [Edward Snowden]. I think you could add who he was specifically. Like some background. … Yeah, you can go into who he was, why he did this and also the thesis is not very clear. So, what argument you're trying to make. This is just informative."
		End Note: "I think that you have to make clear of what your stance is and argue that side."
Praise	Peer offers praise about the topic and/or argument.	End Note: "The exigence of your topic, as well as your position, is strongly voiced throughout your paper. Your arguments are supported well by your evidence."
Paragraph focus/ organization	Peer suggests that the writer reorganize their paragraphs, revise/adjust their transitions, or move information that seems unrelated to the main idea of a given paragraph.	Workshop Discussion: "You talked a lot about the effects of sleep deprivation and habits in youth, but just about every paragraph starts with that, but then the paragraph was actually about something else. So, you're using the youth as a lead-in for some other topic, and it would be more beneficial to focus on the youth in part of the paper and the effects of it in youth."
		Suggestion on Worksheet: "I would move that quote and portion of your paragraph into paragraph 4."
Source integration	Peer suggests that the writer integrate more sources or include specific evidence in support of an idea/argument.	Workshop Discussion: "You don't have a lot of explicit evidence on the sources so you could add more of that for sure."
		Marginal Comment: "Provide sources/ citations that justify the claims you are making."

Surface-level feedback that the students received is summarized and organized by instructor in Figure 3.5. The vast majority of *surface-level feedback* across these course sections was related to *word choice/phrasing*. There were also a few instances of *surface-level feedback* related to *spelling* and *capitalization/punctuation*. In addition, we found three instances of *surface-level feedback* focused on *praise* and two instances focused on *citation/sources*.

Figure 3.5. shows how many students from Sofia's, Sarah's, and Quinn's course sections received five types of *surface-level feedback*: *word choice/phrasing* (25 comments from Sofia's students, five comments from Sarah's students, and 16 comments from Quinn's students), *spelling* (seven comments from Sofia's students, no comments from Sarah's students, and six comments from Quinn's students), *punctuation/capitalization* (four comments from Sofia's students, no comments from Sarah's students, and six comments from Quinn's students), *praise* (three comments from Sofia's students, no comments from Sarah's students, and no comments from Quinn's students), and *citation/sources* (one comment from Sofia's students, one comment from Sarah's students, and no comments from Quinn's students).

Table 3.2 offers more details about the *surface-level feedback* categories by defining the categories and sharing examples.

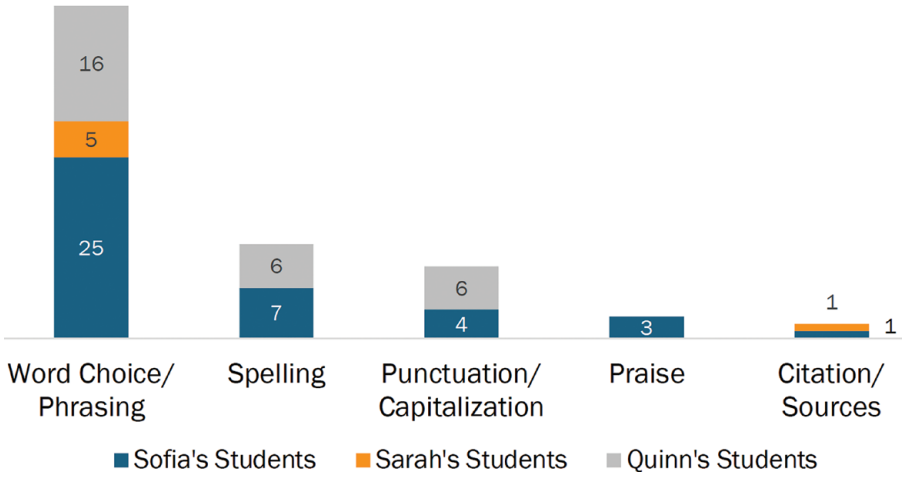


Figure 3.5. Frequency Counts for Surface-Level Feedback in Each Case Study.

Table 3.2. Surface-Level Feedback Definitions and Examples.

Feedback	Definition	Example
Word choice/ phrasing	Peer suggests that the writer rephrase a word or a phrase or directly makes word choice or phrasing changes to the writer's draft.	Workshop Discussion: "I know you were saying your thesaurus is your favorite thing. But I think you need to be a little careful with that because the reader, especially if you're writing to an audience of parents who might be concerned with their sleep habits, you don't want them to have to read it with a thesaurus."
		Marginal Comment: "You can keep 'do' to show emphasis."
		Direct edit: changes "that message" to "the message that every student should be going to college."
Spelling	Peer directly edits the writer's draft or leaves a comment that points out a misspelled word.	Direct edit: "sustainible" to "sustainable."
Punctuation/ capitalization	Peer directly edits the writer's draft or leaves a comment suggesting different punctuation or capitalization.	Marginal Comment: "Capitalize Instagram."
Praise	Peer offers praise for the writer's language choices or formatting.	Marginal Comment: "I do think some sentences use strong vocabulary, which makes it sound great."
		End Note: "Your format and MLA citations all look correct."
Citation/ sources	Peer makes recommendations related to in-text citations or to Works Cited list, primarily focusing on formatting.	Marginal Comment: "Your works cited needs to be in alphabetical order and the indents need to be fixed so it is in MLA format."

Correlating Peer Feedback With Revision

To examine the relationship between peer feedback and revision, we created a list of the *meaning-* and *surface-level feedback* that the students received, treating each suggestion as a potential *triggering event*. We removed the "praise" comments if they didn't recommend revision. We also counted repeated comments as one piece of feedback. For example, Emily received the same comment about moving an idea to an earlier paragraph both on her feedback worksheet and as a marginal comment. Similarly, Catherine left two marginal comments on Geoff's paper that directed him to make the same change (spelling out an

acronym). In these instances, we counted the feedback as a single *triggering event*.

Next, we used the Compare Documents tool in Microsoft Word to examine revisions students made between the draft submitted for peer review and the final draft of the project, looking for evidence of correlations between revision and feedback. When we found such evidence, we concluded that the students had experienced sufficient *exploration* and *integration* to demonstrate *resolution* in their revision. We discuss the relationship between feedback and revision as constituting "correlation" (not "causation") because we can't be certain that the students revised in response to peer feedback. This is because other *triggering events* may have prompted *exploration* and *integration*, including instructor feedback and students' pre-formed plans for revision. It should be noted that Figures 3.4 and 3.5 account only for revisions that correlate to peer feedback. However, many students made additional revisions that we couldn't connect to feedback. Future research might more closely examine the factors that prompt *exploration* to evolve into *integration*, perhaps by interviewing students about the correlated revision and feedback and about the revisions that are seemingly unconnected to peer feedback. One recommendation is to utilize a think-aloud protocol while students revise after peer review, asking them to explicitly consider what *triggering events* might have led to the *exploration* and *integration* that resulted in revision.

Meaning-Level Feedback and Revision

In this section, we focus on specific *meaning-level feedback* students received that correlated to revision choices. These analyses suggest how feedback can create *triggering events* that facilitate *exploration* and *integration*, ultimately resulting in *resolution* via revision. The relationship between *meaning-level feedback* and revision is visualized in Figure 3.6.

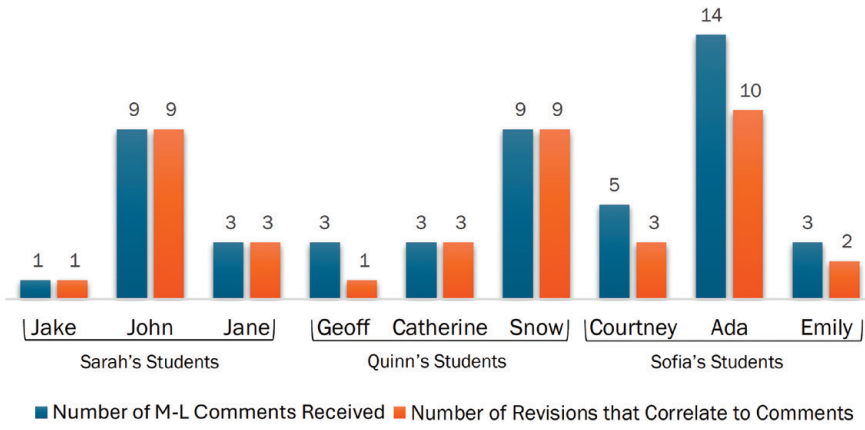


Figure 3.6. Meaning-Level Feedback & Revision.

Figure 3.6 shows the number of *meaning-level feedback* comments each student from Sarah's, Quinn's, and Sofia's course sections received and the number of revisions that correlated to that feedback:

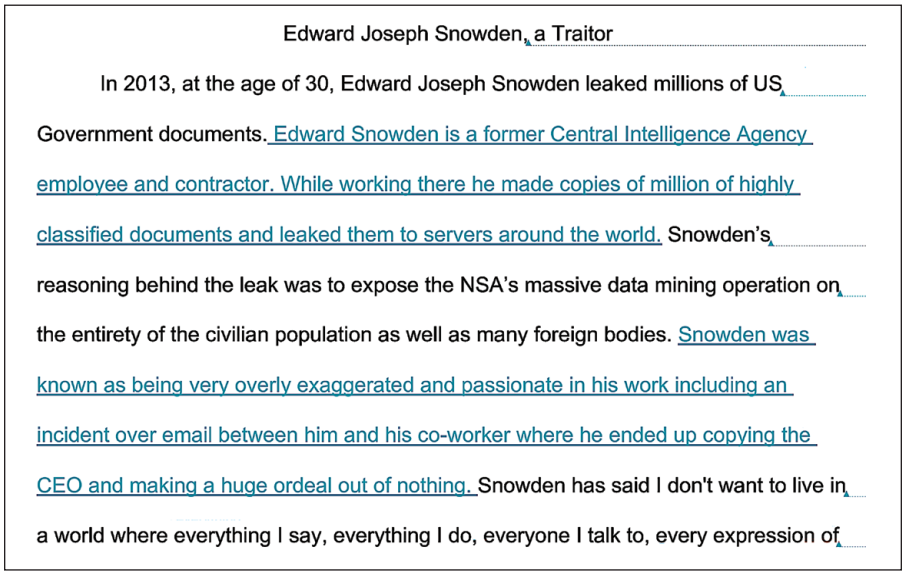
Jake received one instance of *meaning-level feedback* and made one corresponding revision; John received nine instances of *meaning-level feedback* and made nine corresponding revisions;

- Jane received three instances of *meaning-level feedback* and made three corresponding revisions;
- Geoff received three instances of *meaning-level feedback* and made one corresponding revision;
- Catherine received three instances of *meaning-level feedback* and made three corresponding revisions;
- Snow received nine instances of *meaning-level feedback* and made nine corresponding revisions;
- Courtney received five instances of *meaning-level feedback* and made three corresponding revisions;
- Ada received 14 instances of *meaning-level feedback* and made ten corresponding revisions; and
- Emily received three instances of *meaning-level feedback* and made two corresponding revisions.

Five out of the nine students (Jake, John, Jane, Catherine, and Snow) made revisions that correlated with 100 percent of the *meaning-level peer feedback* they received, which suggests that the feedback functioned as a *triggering event* that led to the other three phases of *cognitive presence*. Four of the students (Geoff, Courtney, Ada, and Emily) made revisions that correlated with some, but not all, of the feedback. Courtney, Ada, and Emily each made revisions that correlated to the majority (60–71 percent) of the peer feedback they received, while Geoff made revisions that correlated with only 33 percent of the peer feedback he received.

In the cases of John, Jane, Snow, Emily, and Ada, we feel fairly confident that these writers were actively engaging with and responding to peer feedback during revision and thus experiencing *cognitive presence*. John and Snow are particularly good examples because they both received extensive feedback from peers (nine instances of *meaning-level feedback* each), and they appear to have responded thoughtfully to each one. For example, John received the recommendation to add a specific thesis sentence that also made his point and argument clear, which resulted in him adding the sentence, "Under the espionage act Ed Snowden should be tried as a traitor who single handedly endangered the lives of every single American." In addition, he received a comment asking for more information in the introduction, which he attended to as demonstrated in Figure 3.7, which shows John's final draft that includes two new sentences that provide more background information in the introduction. For John, the peer feedback acted as a *triggering event* that prompted *exploration* (when he considered if and how to respond to the recommendations)

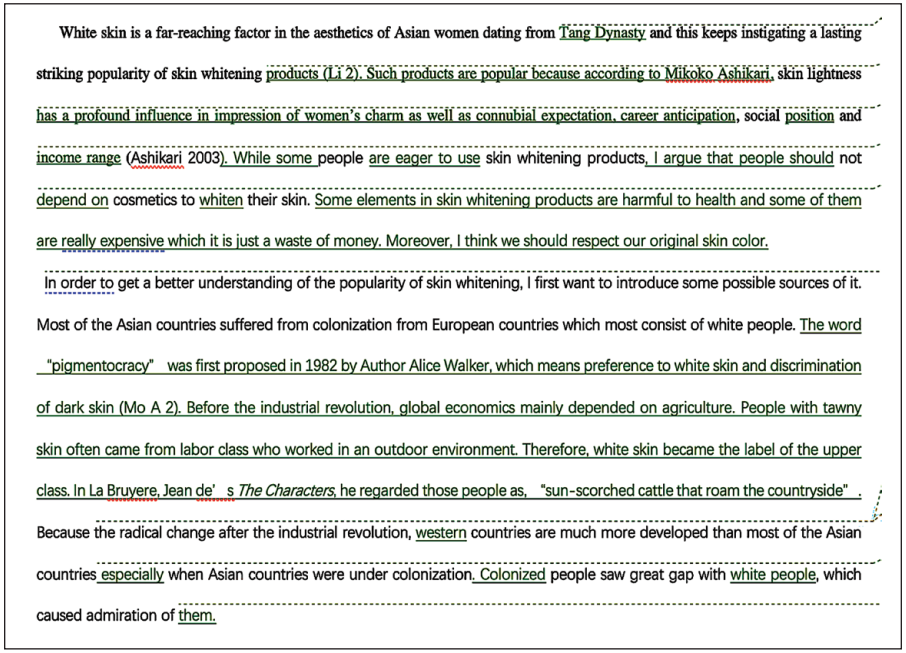
and *integration* (when he determined how to phrase the thesis and what background information to include) that culminated in *resolution* (the resultant revised draft).



Edward Joseph Snowden, a Traitor

In 2013, at the age of 30, Edward Joseph Snowden leaked millions of US Government documents. Edward Snowden is a former Central Intelligence Agency employee and contractor. While working there he made copies of million of highly classified documents and leaked them to servers around the world. Snowden's reasoning behind the leak was to expose the NSA's massive data mining operation on the entirety of the civilian population as well as many foreign bodies. Snowden was known as being very overly exaggerated and passionate in his work including an incident over email between him and his co-worker where he ended up copying the CEO and making a huge ordeal out of nothing. Snowden has said I don't want to live in a world where everything I say, everything I do, everyone I talk to, every expression of

Figure 3.7. Example of John's Final Draft With Revisions.



White skin is a far-reaching factor in the aesthetics of Asian women dating from Tang Dynasty and this keeps instigating a lasting striking popularity of skin whitening products (Li 2). Such products are popular because according to Mikoko Ashikari, skin lightness has a profound influence in impression of women's charm as well as connubial expectation, career anticipation, social position and income range (Ashikari 2003). While some people are eager to use skin whitening products, I argue that people should not depend on cosmetics to whiten their skin. Some elements in skin whitening products are harmful to health and some of them are really expensive which it is just a waste of money. Moreover, I think we should respect our original skin color.

In order to get a better understanding of the popularity of skin whitening, I first want to introduce some possible sources of it. Most of the Asian countries suffered from colonization from European countries which most consist of white people. The word "pigmentocracy" was first proposed in 1982 by Author Alice Walker, which means preference to white skin and discrimination of dark skin (Mo A 2). Before the industrial revolution, global economics mainly depended on agriculture. People with tawny skin often came from labor class who worked in an outdoor environment. Therefore, white skin became the label of the upper class. In La Bruyere, Jean de' s *The Characters*, he regarded those people as, "sun-scorched cattle that roam the countryside" . Because the radical change after the industrial revolution, western countries are much more developed than most of the Asian countries especially when Asian countries were under colonization. Colonized people saw great gap with white people, which caused admiration of them.

Figure 3.8. Example of Snow's Final Draft with Revisions.

Similarly, Catherine left a marginal comment that recommended Snow provide more information about her topic (i.e., skin whitening) and why it is important: "This is a very interesting topic, but it might be beneficial if you mention the main controversies of the issue. That way the reader understands why this is a pressing issue. Also, you need to explain to the reader how this became an issue. Why do women in [A]sia lighten their skin? This is essential information for the reader to get a full picture of the issue." Snow's processes of *exploration* and *integration* led her to add five sentences explaining when "pigmentocracy" was first proposed and noting that the interest in lighter skin emerged before the Industrial Revolution. Figure 3.8 shows these added sentences.

The correlations between *meaning-level feedback* and revision for these students lead us to conclude that the feedback did function as a *triggering event* that prompted sufficient *exploration* and *integration* for students to demonstrate *resolution*. Of course, the full process of constructing new knowledge in response to interacting with peers is much more complicated (and iterative) than what we've been able to describe in this brief presentation of the data. Future studies might benefit from closely mapping a student's experience of moving among the four phases of practical inquiry. For our purposes, this data illustrates that at least some of the students in this study were participating in peer-review workshops that functioned as communities of inquiry.

Other students appeared to attend to some, but not all, of the feedback they received. For example, Ada received 14 instances of *meaning-level feedback* from Emily, and we found revisions that correlated with ten of those. It's difficult to say why Ada may have followed some recommendations but not all, but we did notice that the four comments that didn't correlate with revisions were the last four *meaning-level feedback* marginal comments on the draft, so it may be that Ada simply ran out of time while working through the revision suggestions.

While the data presents fairly compelling evidence that John, Snow, Ada, Jane, and Emily revised their projects in response to peer feedback, the data were more complicated for the other four students in these case studies. Jake, Geoff, and Catherine each made revisions that correlated to *meaning-level feedback*, but we have reason to suspect that they would have made the same revisions even without peer feedback. In the case of Courtney, who received peer and instructor feedback simultaneously, we surmise that the instructor feedback eclipsed the peer feedback. If our suspicions are correct, then we can't conclude that the feedback functioned as a *triggering event*, nor that these students experienced the type of community inquiry that results from learning from peers (i.e., *exploration* and *integration*) and applying what they've learned during revision (i.e., *resolution*).

Jake's initial draft didn't include results and conclusion sections, which likely prompted his classmate John to note, "It's really, really concise so maybe just a little bit extended in some areas." Although his final draft did include a results section and a conclusion, as shown in Figure 3.9, according to his interview it seems as if this revision would have occurred regardless of the peer feedback he

received. In addition to his first-year writing peers' feedback, Jake explained in the interview that he also "had a three-hour discussion about the same paper two days ago with somebody in my department, and they gave me a lot of really critical information to include or to exclude from my paper." Figure 3.9 shows Jake's meaning-level revisions, including an added statistical analysis, discussion, and conclusion.

Similarly, Geoff received a marginal comment from Catherine, shown in Figure 3.10, that advised him to "explain what this means in terms of your argument." His revision includes a considerable amount of new writing that connects the idea to his larger argument, but it's also the case that Geoff had left himself a note in that area of the draft that stated, "*need to add more."

ANOVA Test Results

Group	P-Value	F-Statistic
Subject	0.00517	2.2589
Motion	0.36804	1.00846
Bead	0.01265	3.34182

Table (1): ANOVA test results for the three groups of interest: Subject, Motion, Bead.

Discussion and Conclusion:

The ANOVA test results suggest that no statistically significant difference exists in mean errors between motions, but that a statistically significant difference is observed in the mean errors between subject and bead selection. These results are preliminary and further analysis is needed to help understand and explain the cause of these variations.

While the ANOVA test does suggest reliability of Vicon ® may vary between subject and bead selection, the greatest mean error was under 3mm, which is much less than the error expected from soft tissue artifact. This means that the tracking errors observed in Vicon® may play a smaller role than expected in future studies of soft tissue artifact.

Figure 3.9. Jake's Meaning-Level Revisions.

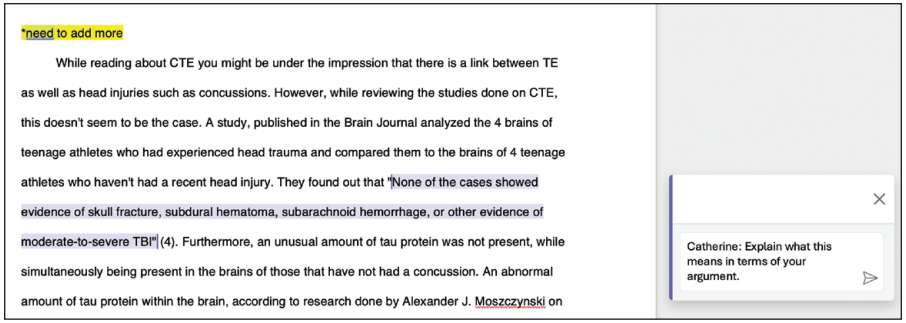


Figure 3.10. Catherine's Marginal Comment to Geoff.

Catherine had also made her own revision plans for her draft. In an endnote, Geoff recommended that Catherine work on her transitions, writing, "I think by improving your transitions will increase the quality of your paper." While her final draft did include revised transitions, Catherine's rough draft also included a note written by her that read, "~transition here not really sure how to do it ask Quinn~".

Jake, Geoff, and Catherine all appeared to have ideas about how to revise and/or finalize their drafts prior to the peer-review workshop. The peer feedback they received may have affirmed their ideas, but we don't have sufficient evidence to suggest they completed these revisions *because* of peer feedback. In other words, we don't have evidence of knowledge *co*-construction that was facilitated by *exploration* and *integration*. Accordingly, we are limited in our ability to conclude these students engaged in the kind of social knowledge construction within the peer-review workshop that characterizes *cognitive presence*.

Our case studies also suggest that some students may have revised their work in response to a different kind of *triggering event*: feedback that they received from the instructor. For example, Catherine's note-to-self shows that she intended to ask her instructor for help on her transitions. A prioritizing of instructor feedback over peer feedback was even more evident in Sofia's course section because Sofia offered students feedback at the same time as the peer review, which meant that students were simultaneously responding to peer and instructor feedback during revision. Sofia's student Courtney provides an example. She made substantial revisions to her draft by adding content, reorganizing sections and paragraphs, and clarifying points. Our analysis indicates that she was attending to both peer and instructor feedback, and we found more correlations between her revisions and the instructor feedback than with the peer feedback. In her author's note, Courtney wrote:

> I would really appreciate if you could note if I repeat myself or the same ideas more than once, as well as going off topic. I would also like any ideas for maybe an additional topic I could add, as I am a few hundred words off.

> I have already revised my draft a couple of times, adding more text. I also added another sources [sic] so that I nkow have six. I would really appreicate if you could note if I repeat myself or the same ideas more than once, as well as going off topic. I also would like any ideas for maybe an additional topic I could add, as I am a few hundred words off from the final draft requirement. I appreicate any feedback and appreicate any critiques.I have already revised my draft a couple of times, adding more text. I also added another sources [sic] so that I nkow have six. I would really appreicate if you could note if I repeat myself or the same ideas more than once, as well as going off topic. I also would like any ideas for maybe an additional topic I could add, as I am a few hundred words off from the final draft requirement. I appreicate any feedback and appreicate any critiques.

In her peer feedback for Courtney, Ada responded to Courtney's request for an additional topic, recommending that she include a discussion about concurrent enrollment courses and that she consider including personal experiences. She also responded to Courtney's question about repetition, writing, "I think you might drag out the idea of completing college on their own time. You talk about it three paragraphs in a row. I would either combine them or make a better differentiation between them." Finally, Ada recommended that Courtney revise the concluding paragraph in two ways: "clarify whether the graduation rate with online courses is worth it," and separate "the last couple of sentences into their own paragraph."

During her interview, Courtney said that she attended to peer feedback, saying, "I thought it was very helpful, and I really tried … to take what they said really into consideration." However, in her revision, Courtney didn't follow Ada's recommendation about adding discussions of concurrent enrollment or personal experiences. She did add information about the graduation rate but didn't appear to have followed Ada's recommendations about her conclusion.

The largest correlation we observed between Courtney's revisions and Ada's suggestions was related to Ada's second comment. Courtney deleted one paragraph and reorganized a few others to focus more on a distinct sub-topic (such as the benefit of not having to drive to school), which seemed in line with Ada's recommendation to "either combine" or "better differentiate between" the paragraphs. However, this revision also correlated to feedback Courtney received from Sofia, who wrote, "Your second paragraph is about convenience, then you move on to cost, and then you go back to convenience. [D]iscuss a particular issue in several paragraphs and then move on to another issue." Consequently, while Courtney may have been revising in response to peer feedback, we suspect that she either privileged instructor feedback over peer feedback or possibly ignored peer feedback and focused only on instructor feedback.

Courtney may have experienced *exploration* and *integration* that led to *resolution* as a result of the student-teacher interaction, but it doesn't appear that her peer-review workshop functioned as a community of inquiry through which students co-construct knowledge with peers. This isn't to say that *triggering events* prompted by student-teacher interactions are problematic but rather to illustrate the need for considering how the timing of teacher feedback might impact (and in this case, hinder) the potential for peer review to function as a community of inquiry.

Surface-Level Feedback and Revision

Unlike the revisions students made that correlated with most of the *meaning-level feedback* they received, the students' responses to *surface-level feedback* were more varied. Figure 3.11 shows the relationship between *surface-level feedback* and revision. It depicts the number of *surface-level feedback* items each student from Sarah's, Quinn's, and Sofia's course sections received and the number of revisions that correlate to that feedback:

- Jake received two instances of *surface-level feedback* and made two corresponding revisions;
- John received two instances of *surface-level feedback* and made one corresponding revision;
- Jane received two instances of *surface-level feedback* and made no corresponding revisions;
- Geoff received four instances of *surface-level feedback* and made three corresponding revisions;
- Catherine received 14 instances of *surface-level feedback* and made seven corresponding revisions;
- Snow received nine instances of *surface-level feedback* and made four corresponding revisions;
- Courtney received no instances of *surface-level feedback* and made no corresponding revisions;
- Ada received 31 instances of *surface-level feedback* and made 29 corresponding revisions; and
- Emily received five instances of *surface-level feedback* and made two corresponding revisions.

For Jake, John, Geoff, and Ada, the surface-level feedback seems to have functioned as a *triggering event*: all appear to have made revisions in response to the majority of suggestions they received. The amount of feedback they received, however, was quite different, with Jake receiving only two items of *surface-level feedback* and Ada receiving 31. Other students, like Catherine, Snow, and Emily, made revisions that correlated to only 50 percent or less of the suggestions they received. Jane made neither of the recommended surface-level revisions, and Courtney didn't receive any *surface-level feedback*.

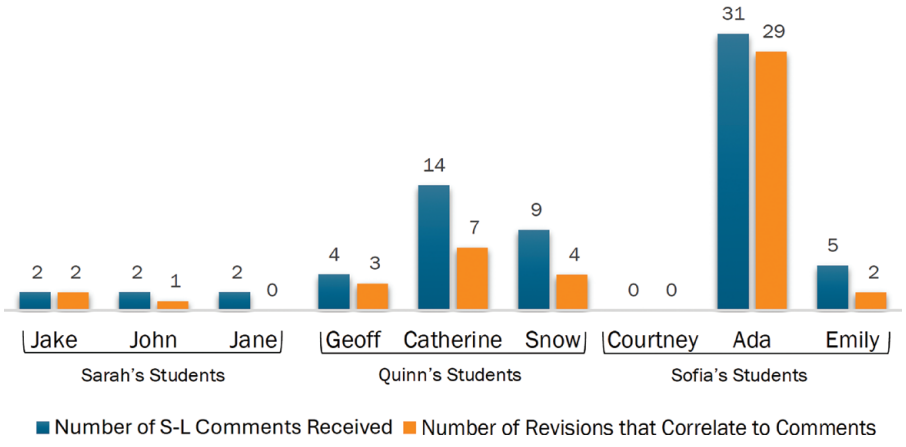


Figure 3.11. Surface-Level Feedback & Revision.

One factor contributing to the wide range in amount of *surface-level feedback*, especially in Sofia's class, is the role of authors' notes in the workshop. Sofia's students each composed author's notes at the top or bottom of their documents, informing the reviewer about the aspects of their writing they most wanted feedback on. The peer reviewers for the most part attended to those requests and also made additional suggestions for revision. Ada, who received 31 surface-level suggestions from her classmate, included in her author's note, "Please check my grammar." In response to Ada's request, she received surface-level feedback from Emily, as shown in Figure 3.12.

Edits Emily made to Ada's essay included correcting "chose" to "choose" as well as two marginal comments directing Ada to "replace with a comma after 'attend' and then add the word causing. It should look like 'for everyone to attend, causing the quantity….'" and to "add a sentence here to close out this paragraph and introduce the next one."

Emily similarly requested of her reviewer, "The thing I am most worried about is the grammar and wording of my essay," and she received five instances of *surface-level feedback* from her classmate. Conversely, Courtney didn't request any *surface-level feedback*, instead starting off her author's note with, "I would really appreciate if you could note if I repeat myself or the same ideas more than once, as well as going off topic." Courtney received no *surface-level feedback* from her peer reviewer.

Like Courtney, the students in Sarah's course section received very little *surface-level feedback*, but in their cases, this was likely due to the workshop design. These students offered verbal feedback, which didn't allow for the direct edits and marginal comments that students in other course sections used to provide *surface-level feedback*.

For the students who did receive *surface-level feedback*, the correlation between that feedback and revision varied. In some cases, we as researchers perceived the *surface-level feedback* as inadvisable and thus speculate that the writer felt the same way.

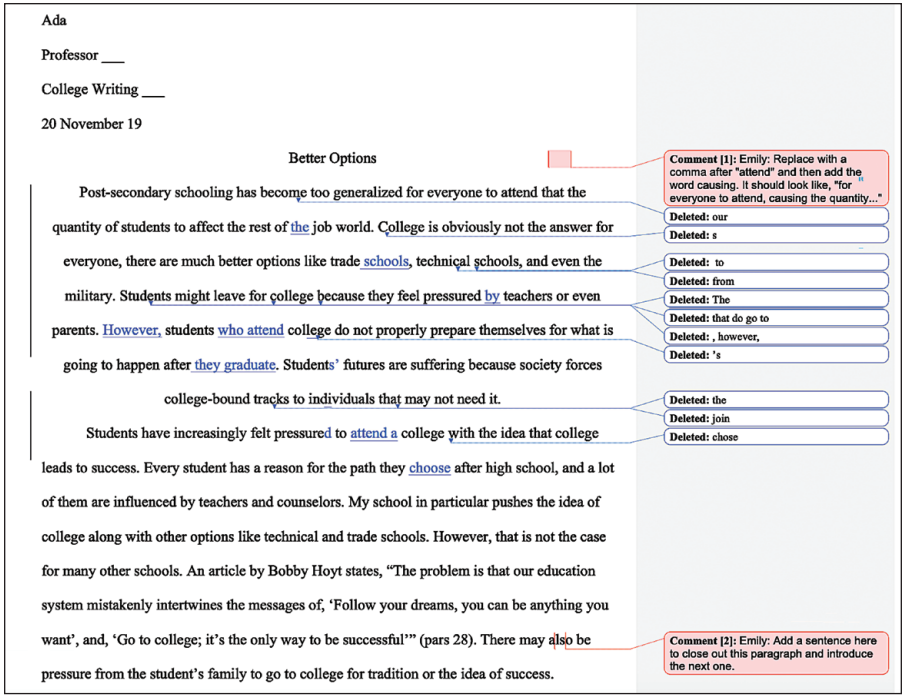


Figure 3.12. Emily's Surface-Level Feedback to Ada.

For example, on Snow's draft, one of her classmates changed the spelling of a word in a direct quote; in the final draft, Snow maintained the cited author's spelling. In other cases, we suspect that the writer didn't pay attention to the suggestion; for example, Geoff corrected Catherine's misspelling of "horors" to "horrors," but the final draft maintained "horors." In still other cases, the writer received contradictory feedback from two peers. For example, Geoff recommended that Catherine delete the word "do," but then Snow noted, "You can keep 'do' to show emphasis"; in the final version, the word is maintained.

In other instances, we are unable to surmise how a writer felt about a piece of feedback because the word or phrase that the feedback focused on wasn't present in the final draft. It may have been that the student agreed with the feedback but for a variety of reasons removed the word/phrase/sentence/paragraph from the final draft. In that case, the feedback may have been a *triggering event*, but not one that resulted in *exploration*, *integration*, or *resolution* that we could observe in this dataset.

Conclusion and Recommendations

Through interviews, the students and instructors who were subjects of this study identified multiple potential outcomes (or *resolutions*) of peer review, including *gain fresh perspective*, *learn from peers' writing*, and *improve text*. Our analysis of

students' *meaning-* and *surface-level feedback* and the revisions they made between drafts confirms that peer feedback can function as a *triggering event* that facilitates *exploration* and *integration*, creating the opportunity for those *resolutions*. In other words, at least for some of the participants in this study, peer review can and does function as a community of inquiry. An important next step is to question whether the course design creates spaces where students are likely to achieve the anticipated *resolutions*. We explore that question in Chapter 5 of this book.

By analyzing students' drafts and revisions, we can see how feedback creates *triggering events* that lead to *exploration* and *integration* and thus creates opportunities for *resolution* during revision. Evidence among drafts and revisions suggests that the four phases of *cognitive presence* are more obvious among *meaning-level feedback* and revisions, which more clearly demonstrates where community inquiry and shared knowledge construction happens. While *surface-level feedback* also leads to revision, we saw less evidence of the kinds of co-constructed knowledge expected among a community of inquiry. Overall, *cognitive presence* is attainable via peer review and did occur for some students; however, as with all CoI presences, its creation isn't automatic.

We also recognize that the type of *resolution* we've observed in this chapter—revision in response to feedback—isn't the only desired or valuable outcome of peer review. Other methods are required to measure *resolution* related to the writing process and to writing concepts and to study how students apply what they have learned to other writing projects within and beyond college classrooms. What our study does show is that peer review can be understood as a closed system that supports all four phases of *cognitive presence*. This is unusual in CoI research, which more typically examines asynchronous discussions and concludes that *resolution* isn't visible.

Additionally, while our study confirmed that the potential for *cognitive presence* was met for some students, it was less clear for other students. All students revised their work, but we have reason to believe that *triggering events* other than peer review (such as pre-planned additions and instructor feedback) drove some of those revisions. These findings demonstrate that learning is not a one-size-fits-all experience and give us reason to caution against using the concept of *cognitive presence* to concretely confirm if and when learning has occurred. Instead, *cognitive presence* must be understood in relation to the other two presences in the CoI Framework—*social presence* and *teaching presence*. We do that work in the next two chapters of this book.

Before moving on, we offer three recommendations for writing instructors, tutors, and researchers based on our analysis of *cognitive presence*.

Recommendation 1: Design Peer-review workshops That Have the Potential to Facilitate Knowledge Co-construction

In order for peer-review workshops to function as communities of inquiry, they need to be intentionally designed to facilitate knowledge co-construction.

Dewey's (1910) four phases of practical inquiry provide a helpful starting point for that design. Any activity that aims to facilitate community inquiry should include *triggering events* that invite *exploration* and *integration* as well as clear parameters for how students can apply their learning and thus demonstrate *resolution*. Specific to peer review, instructors should create texts and design activities that prompt *triggering events* (such as peer feedback), and then help students learn how to read and understand that feedback (*exploration*) as well as how to make their own decisions about how to revise in response to the feedback (*integration*). Instructors should also create specific assignments that invite students to demonstrate what they learned (*resolution*). Our study found evidence of *resolution* in the correlations between feedback and revision, but in an instructional context, it's advisable to ask students to be the ones who name those correlations, such as through a revision memo or reflective cover letter.

Recommendation 2: Acknowledge the Challenges of Measuring Learning

While our findings illustrate that peer review can and sometimes does facilitate *cognitive presence*, the data also shows that it is difficult to assess the extent to which students actually experience knowledge co-construction. In some cases, we were unable to determine whether students' learning was a result of interacting with peers or with someone or something else. Our case study analysis suggests that some students in Sarah, Quinn, and Sofia's course sections (i.e., John, Snow, Ada, Jane, and Emily) experienced knowledge co-construction as they revised their essays in response to peer feedback. However, while other students in those course sections (i.e., Jake, Geoff, and Catherine) each made revisions that correlated to feedback, we speculate that they might have made the same revisions without peer feedback. In the case of Courtney in Sofia's class, she received instructor feedback along with peer feedback, likely focusing more on feedback from her instructor than her classmates. As Halasek (2023) has argued, "Peer review that is immediately followed by teacher commentary … is subordinated by that teacher commentary as students reasonably turn to the teacher's response for guidance for revision because attending to teacher commentary is more important to improving grades" (p. 79). If our speculation is correct, we can't conclude confidently that all students experienced the type of *resolution* that results from *exploration* and *integration* but that the potential for this learning still is possible.

Consequently, our recommendation to writing instructors, tutors, and researchers alike is to be wary of confidently asserting that learning has occurred. The CoI framework presents a tidy heuristic that we find immensely useful as a tool for analyzing instructional design decisions. But learning is a messy and complicated human experience that won't be confined to the linear progression of *triggering event* to *exploration* to *integration* to *resolution*. To further explore this complexity, we turn our attention to *social presence* in the next chapter.

Recommendation 3: Articulate Learning Goals

In Chapter 5, we examine *teaching presence*, specifically questioning the extent to which the anticipated resolutions from peer review presented in this chapter (*gain fresh perspective*, *learn from peers' writing*, *improve text*) were articulated in the course design. Our findings confirm what was hinted at in this chapter: there are disconnects between instructor intentions and student experiences. For example, while four instructors in our study stated that an anticipated *resolution* of peer review was to *learn writing process* and three instructors declared an aim was to *build community*, none of their students articulated these same aims for peer review. Therefore, a key recommendation we will make throughout this book is for instructors to be clearer about the purpose and expectations when introducing peer review. As Halasek (2023) has argued, peer review cannot "be left to chance. It must be systematic and intentional" (p. 91). Weaver (2023) similarly noted that a primary problem with peer review relates to goals that either haven't been articulated by the instructor, haven't been communicated between students and instructors, or have been "both articulated and unarticulated [but] may not be achievable, particularly within first year composition courses" (p. 59). Accordingly, we recommend that writing instructors articulate the intended *resolution* from peer review to students, which might include *learn from peers' writing*, *gain fresh perspective*, and *improve text*. More broadly, our study illustrates the importance of clearly defining and articulating the intended goals of collaborative activities in general.