

# Secondary Students' Perceptions of Peer Review of Writing

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*Although multiple studies have found that peer review is an effective instructional practice for the teaching of academic writing in K–12 settings, little research exists that documents students' views of peer review and the features that make peer review tasks useful or challenging for writing development. In this study, we investigated high school students' perceptions of peer review through a questionnaire administered to 513 students from four schools who had used SWoRD, an online peer review system. Data were analyzed both quantitatively and qualitatively. Our findings demonstrate that most students viewed peer review as helpful to their writing development and that students consistently viewed three features of the SWoRD peer review system as most beneficial: anonymity of writers and reviewers, opportunities to review other students' writing, and feedback from multiple readers. Students reported difficulty with managing conflicting reviews and wording their feedback. Our study contributes to existing research on peer review of writing by suggesting that secondary peer review activities would be more helpful to students if they considered students' concerns about social positioning and face-saving, allowed writers to receive feedback from multiple reviewers, and taught students how to manage conflicting reviews. Additionally, our study suggests that the benefits of reviewing have been greatly underestimated in existing research and that students would benefit from more opportunities to give, as well as receive, feedback on academic writing.*

## Introduction

Recent research has shown that secondary students have few opportunities to produce extended pieces of writing or participate in classroom activities that help build their understanding of academic writing, even though provision of multiple opportunities to write papers of one page or more has been tied to writing development and college preparedness (Applebee & Langer, 2013). In a recent survey, 10% of grade 8 students and 14% of grade 12 students reported being asked to

do no writing as part of their homework for their English language arts classes (National Center for Education Statistics, 2012). The limited opportunities to write are reflected in national assessments of academic writing, which report that only 24% of students in grades 8–12 perform at a proficient or advanced level (National Center for Education Statistics, 2012).

Teachers often cite the extensive time required to provide detailed feedback to students as a factor in deciding whether to assign more or longer pieces of writing (Applebee & Langer, 2013). Given the number of students most secondary English teachers instruct, providing students with multiple opportunities to write and revise is a considerable challenge.

Peer review, a common instructional approach to writing found in elementary through college classrooms since the 1980s and a key element in “process” approaches to writing, is one potential answer (Atwell, 1987; Hillocks, 1984). During peer review, students rather than teachers provide feedback to other students on their writing. Multiple studies have shown that peer review leads to improvements in students' writing and increased understanding of the expectations and genres of academic writing; thus, it is often hailed as a “best practice” in writing instruction (MacArthur, 2007).

Peer review rose to popularity as a form of writing instruction through the use of writing groups (Ching, 2007). Writing groups started in the early twentieth century, both inside and outside the academy, as places where writers voluntarily shared their writing and provided feedback to other members (Gere, 1987). Instructors began to incorporate writing groups and peer response into K–12 English language arts and college composition classrooms due to the influence of authors such as Atwell (1987), Calkins (1986), Elbow (1973), and Murray (1968). Scholars and educators have often noted the potential of peer review to help students take ownership of their work and develop greater audience awareness as they engage in timely conversations with authentic readers about how to revise (Atwell, 1987; Calkins, 1986; Gere, 1987).

Although peer review has become a widespread approach to writing instruction in kindergarten-through-college settings, little research exists that documents students' views of peer review and their perceptions of the characteristics that make it most challenging or useful for writing development. Other studies of students' perceptions of instructional techniques in ELA have demonstrated that students often experience and interpret classroom activities differently than teachers and researchers assume (Godley & Escher, 2012; Smagorinsky, Daigle, O'Donnell-Allen, & Bynum, 2010). Incorporating students' perspectives on classroom activities can lead to more productive literacy instruction (Scherff & Piazza, 2005) and can help teacher and literacy researchers design activities that foster greater student motivation and learning. Conversely, students' resistance to literacy activities can reduce the effectiveness of these activities. To better understand students' views of peer review, its affordances, and its challenges, we administered a questionnaire to 513 high school students.

## Review of the Research

Although it is often hailed as a best practice in writing instruction, peer review in kindergarten through college classrooms is implemented in a variety of ways with different results. Peer review is most beneficial when it guides students to focus on the writer's ideas rather than sentence-level edits; when it increases students' awareness of audiences other than the teacher; and when it helps writers develop metacognitive awareness and regulation of their own writing processes (Midgette, Haria, & MacArthur, 2008; Simmons, 2003). Conversely, peer review has been shown to be least beneficial when issues of face-saving and lack of trust lead reviewers to avoid critique and writers to dismiss their peers' feedback (Freedman, 1992; VanDeWeghe, 2004).

A more recent approach to peer review, and the one that students in our study used, employs online tools and digital communication for giving and receiving feedback. Some programs allow students to upload their own work and review others' work anonymously (Godley, DeMartino, & Loretto, 2014; Hovardas, Tsivitanidou, & Zacharia, 2014), while other programs make students' identities fully visible to their peers (McCarthy, Kline, Kennett, & Magnifico, 2013; Zheng, Lawrence, Warschauer, & Lin, 2015).

Peer review in online spaces can be as effective for improving students' writing as face-to-face peer review (Lu & Law, 2012; McCarthy et al., 2013). When students are asked to provide both comments and ratings for peers' papers in online environments, they increase their metacognitive understanding of writing and use the feedback to produce higher-quality drafts (Lu & Law, 2012; Zheng et al., 2015). Conversely, some online tools can subvert the peer review process. McCarthy et al. (2013) found that tools that allowed students to comment directly on their peers' documents led to more editing comments and less feedback about the papers' content.

Few studies of peer review in face-to-face or online contexts include students' perceptions of peer review in secondary classrooms (Early & Saidy, 2014). Most research on students' views of peer review has been conducted at the college level (Kaufman & Schunn, 2011; Liu & Carless, 2006). This research has shown that although students benefit from peer review and reflecting on the feedback process (Herrington & Cadman, 1991), they are often uncomfortable with peer review and concerned about the fairness of the task (Kaufman & Schunn, 2011; Liu & Carless, 2006).

Though these college-level studies are useful for considering how to design peer review activities in a variety of contexts, studies that examine the unique perspectives of K–12 students are needed, since post-secondary educational contexts and student populations differ significantly from elementary, middle, and high school settings and learners. One distinction of K–12 school settings is that students are not self-selecting, since all children are required to attend school in grades K–12, while only 42% of high school graduates attend four-year colleges (National Center for Education Statistics, 2015). Therefore, K–12 students typi-

cally have more diverse academic abilities and writing experiences than those in the four-year college setting, where most studies of students' perceptions of peer review have taken place (Kaufman & Schunn, 2011; Liu & Carless, 2006). Previous research has also indicated that social status and friendships in K–12 classrooms often strongly shape students' engagement in peer review (Christianakis, 2010). Additionally, unless conducted in a required English composition course, research on peer review at the college level often focuses on courses within specific majors and students who, therefore, may have more expertise or motivation to improve their writing than K–12 students in a required ELA class (Patchan, Schunn, & Clark, 2011). Thus, it cannot be assumed that K–12 students' experiences with and perceptions of peer review are the same as those of their college counterparts.

As part of a three-year research study of peer review of writing using an on-line peer review system called SWoRD (Scaffolded Writing and Rewriting in the Disciplines), we investigated the perceptions of high school students in multiple school contexts and subject areas about the benefits and challenges of peer review. Few studies of secondary students' perceptions of peer review exist, and most tend to focus on students' general attitudes toward writing and peer review rather than specific features of a peer review task. Of the three studies of secondary students' perceptions of peer review conducted in the last 25 years (described below), two provide only general information on students' attitudes toward peer review, and one is limited to only 15 students in the same classroom context.

These three studies also present conflicting results on whether secondary students value feedback from their peers and use it for revision of writing. In a study of the practices and perceptions of 28 seventh-grade students engaging in peer review of science writing, Hovardas et al. (2014) found that students perceived expert feedback as more valuable than that of their peers, but that students often drew from their peers' feedback when revising their writing. In Gielen, Tops, Dochy, Onghena, and Smeets's (2010) study of 62 seventh-grade Belgian students, a majority of the students surveyed reported that they did not think peer review was helpful and that they would not like to participate in peer review again. In discussing the comments received on a questionnaire about peer review, the researchers stated, "Some exemplary qualitative comments suggested that [students] considered it boring or a waste of time" (Gielen et al., 2010, p. 159). Early and Saidy (2014) conducted interviews of 15 tenth-grade students and concluded that students had mostly positive feelings about participating in peer review. Students reported that they liked being able to read multiple essays to help them gather ideas of how to address problems in their own writing. Students also reported that they liked having a better understanding of how their audience understood their argument, which helped them refine and clarify their ideas and opinions during revision. Our study adds to this small body of research on secondary students' perceptions of peer review by analyzing the views of a larger, more diverse group of high school students across school settings, and by asking students' opinions about specific features of peer review rather than their overall assessment of the task.

## Methods

We grounded this study in two research questions: What are the perceptions of students in grades 9–12 of the overall helpfulness of peer review? What are the students' perceptions of the affordances and challenges of specific features of peer review? We constructed a questionnaire for students in four high schools who had used SWoRD for peer review. The questionnaire focused on students' general perceptions of peer review and their perceptions of specific aspects of peer review.

SWoRD is an online peer review system originally developed at the University of Pittsburgh in 2002 (Cho, Schunn, & Charney, 2006). Since then, SWoRD has been upgraded and revised multiple times. Our questionnaire was administered as part of a three-year project focused on developing additional computer-mediated scaffolding tools for SWoRD, such as a revision planning tool. Our questionnaire was distributed to participating teachers after the first year of the study, before teachers and students used the new scaffolding tools, in order to gauge students' perceptions of the baseline version of SWoRD and of peer review in general.

In SWoRD, teachers design most aspects of the peer review process. They design and upload assignment descriptions, set the number of reviewers per paper, set due dates for drafts, and create the rubric students use to review, including open-ended questions and numerical ratings.

For students, SWoRD mimics the double-blind reviewing process typical of academic publishing, where both writers and reviewers are anonymous—in this case through pseudonyms. Students submit a first draft of writing to the SWoRD online system, and the draft is then randomly distributed to three to six peers for review (see Figure 1 for a view of a student's assignment timeline). Students then read and respond with quantitative and qualitative feedback to prompts on features of writing determined by the teacher, such as thesis and evidence (see Figure 2 for a student view of sample prompts). SWoRD aggregates all comments and ratings for students and weights quantitative ratings across reviewers to provide scores for each draft. Students can review all comments and ratings before planning revisions and submitting second drafts and also rate the helpfulness of their peers' feedback.

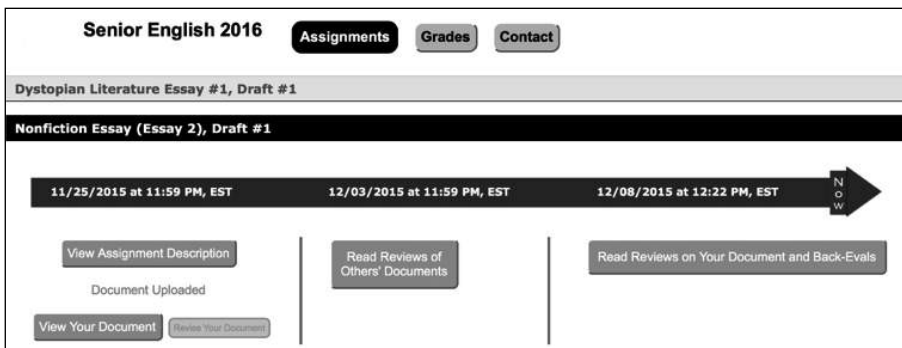


FIGURE 1. *Assignment timeline*

**Analyze JFK's rhetorical strategies - Draft #1**  
Review Document by

Upload Your doc    Read & Review others' docs    Read reviews on my doc, & make Back Eval

Download Document

**Assignment Description**  
See pages 51-57. Write an essay analyzing the rhetorical strategies John F. Kennedy uses in his inaugural address to achieve his purpose.

**1. Thesis**  
Provide feedback on the quality of the author's thesis, central claim, or controlling idea. Be specific about how the writer could improve his or her thesis, central claim, or controlling idea and provide suggestions for improvement.

Comment 1: (\*Required)

Your thesis is very nice, and I like your main points. But I do find it a little confusing. One of the main issues is I can't tell what your main points are. In the first sentence you say, charismatic attitude and clear line of thought, Then in a couple sentences down you state, organized arrangement and various patterns of development. It is slightly confusing on what your thesis and what your main points are, or if those are all your main points. To make it easier for the reader to understand your main points, you should make your thesis more clear and all one sentence. That

XXXXX SELECT RATING XXXXX

- 7 - The author's introduction includes a clear thesis statement/controlling idea that makes a specific, original, and interesting claim. 6 - 6
- 6 - The author's introduction includes a clear thesis/controlling idea, but it is not very specific, original or interesting. 4 - 4
- ✓ 3 - The author's introduction includes a thesis/controlling idea, but it is unclear, overly general or simply a restatement of the essay prompt. 2 - 2
- 1 - The author did not include a thesis/controlling idea in his or her introduction.

FIGURE 2. *Sample feedback and rating prompts*

Existing studies have raised issues of student effort in peer review settings and social face-saving overriding honest critique (Christianakis, 2010; Freedman, 1992). SWoRD addresses these concerns in multiple ways. All students use pseudonyms on both their reviews and essays. However, reviewers are held responsible for the quality of their reviews, as SWoRD generates a “reviewing” grade for each assignment. This grade is calculated using both authors’ ratings of the helpfulness of reviews and the correlation of reviewers’ quantitative ratings with those of other students reviewing the same essays.

### ***Participants***

Teachers were recruited for the larger study through emails sent to local school districts and the local National Writing Project email list. Interested teachers often recruited colleagues at their schools to participate. Teachers and their students from four high schools participated in our study (see Table 1); neither teachers nor students were incentivized to participate. Each school setting was distinct. Metropolitan Charter High School (all names of schools and participants are pseudonyms) was a racially diverse, urban charter school with 61% of students receiving free or reduced lunch (FRL). The student population was 58% Black, 38% White, 7% biracial, 3% Asian, and 2% Latino. Teachers in all content areas within the school used SWoRD; thus, most students at Metropolitan Charter used the system frequently and in more than one course. Classes at Metropolitan Charter operated in large rooms containing 50 or more students and were typically

**TABLE 1. SWoRD Peer Review Implementation and Questionnaire Representation by School**

School	Grade Levels Using SWoRD	Disciplines Using SWoRD	Number of Returned Questionnaires (including partial responses)
METROPOLITAN CHARACTER HIGH SCHOOL	9–12	Cultural literacy (ELA, social studies block); math; science; research; business; technology	389
JESUIT GIRLS SCHOOL	9–12	ELA (including Advanced Placement)	70
SEMINOLE HIGH SCHOOL	9, 12	ELA (including Advanced Placement)	47
CAVALIER HIGH SCHOOL	12	ELA	7
TOTAL			513 (54% response rate)

co-taught by a content-area teacher and a special education teacher. One math teacher at the school used SWoRD for up to eight writing assignments per year.

Jesuit Girls School was a small, single-sex, urban Catholic school. The student population was predominantly White (89%), 13% Black, and 1% Asian, with no Latino population and 15% of students qualifying for FRL. Two English language arts teachers covering grades 9–12 used SWoRD two times in two of their classes with approximately 20 to 25 students in each class.

Seminole High School was a public school that drew from both suburban and rural communities. The school population was 98% White and 1% Black and did not report populations of Asian or Latino students; 21% of students received FRL. Two ELA teachers from Seminole High School used SWoRD one time in their ninth-grade or twelfth-grade AP classes. The ninth-grade classes averaged 25 students per class, and the twelfth-grade AP classes also averaged more than 20 students per class.

Cavalier High School was a predominantly White (93%; 3% Black, 3% Asian, 1% Latino) public suburban high school, with 21% of students receiving FRL. The school's ELA department chair and a second certified ELA teacher used SWoRD once in the five sections of twelfth-grade English that they co-taught, which averaged 20 students per class.

### **Data Sources**

#### **Student Questionnaires**

To better understand all student participants' perspectives on SWoRD, we distributed an online questionnaire through Qualtrics, an online survey management tool, to

gauge student perceptions of the benefits and challenges of peer review in general and the specific features of the SWORD peer review system (see Appendix A). The questionnaire items drew on the themes that surfaced during teacher interviews, described below, and related research, including the questionnaire Kaufman and Schunn (2011) used to gather college students' perceptions of the SWORD online peer review system.

The questionnaire consisted of thirty items. Six asked how frequently students used peer review, or requested details about the context of the peer review activities (such as whether the peer review was done at home or in class). Nineteen asked students to use a four-point Likert scale—strongly disagree, disagree, agree, strongly agree—to provide their opinions about receiving and giving peer feedback; ten of these items focused on students' perceptions of the feedback they received from peers, and nine focused on students' perceptions of giving feedback. Students had three opportunities to provide open-ended comments about giving feedback, receiving feedback, and which features of SWORD they would keep or change. Finally, two questions asked students to rate the overall benefit of peer review generally and of the SWORD system specifically.

One limitation of the study is that the open-ended comments on giving and receiving feedback were optional and had a low response rate of between 4% and 17%, suggesting that those who responded were likely students who had particularly strong positive or negative opinions about SWORD and peer review. While illustrative, the comments do not necessarily reflect the perceptions of all 513 students.

### Teacher Interviews

The 17 teachers who participated in our study received coaching from the research team on how to introduce peer review and how to use the SWORD system. Teachers also received a model lesson plan for a 30-minute introduction on helpful peer review that included sample student papers and peer review comments. All materials and training emphasized that strong peer feedback focuses on ideas rather than editing, is specific, and offers suggestions for improvement. Teachers regularly communicated with the research team via email concerning any technical issues or assignment questions.

Through SWORD, the researchers were able to track all assignments, deadlines, rubrics and comment prompts, student writing, and student reviewing. Teachers implemented SWORD in a variety of ways, even within the same school context, but most teachers assigned students a first draft of a piece of writing, then peer review, then a second draft. Some teachers used student-generated ratings of peers' writing for final grades, while others used peer ratings only for rough drafts. Teachers across subject areas also varied in the wording and topics of their feedback and ratings prompts, though most teachers asked students to respond to approximately five open-ended feedback prompts and five ratings prompts. The prompts tended to focus on the thesis or main idea, textual evidence, explanations, and conventions or grammar (see Figure 2).

To gather information about the teachers' writing instruction and to compare teachers' and students' perceptions of the SWORD peer review system, we compared



findings from the student questionnaires to themes in interviews we conducted with 15 out of 17 participating teachers (see Table 2). Although we also observed most of the classrooms in our study one to two times, these observations did not reveal significant patterns in teachers' writing instruction or students' perceptions of peer review, since teachers often talked about peer review sporadically and at times we were not scheduled to be at the schools, and because students often did much of their work on SWoRD outside of class. We therefore used teacher interviews to provide context regarding teachers' writing instruction and implementation of SWoRD, as well as to compare and contrast students' views on peer review with their teachers' perceptions (see Appendix B).

The interviews revealed significant variation in how long teachers spent introducing peer review, from 10 minutes to over an hour. Even at Metropolitan Charter, where students in ninth grade were using peer review for the first time and students in higher grades had used it across subject areas for over a year, the ninth-grade teachers did not report spending more time introducing and talking about peer review than teachers of higher grades. Of the teachers who reported how they introduced peer review, two said they used the model lesson we provided. Two teachers taught formal lessons of their own design that involved studying models. Four teachers conducted discussions about how to give good feedback, while one delivered a lecture. Teachers also varied in how much writing they assigned per year. The median number of writing assignments of at least one page was between four and five, though at Metropolitan Charter High School, one science teacher claimed she did not consistently assign any extended writing, one math teacher gave eight assignments, and an English teacher gave twelve.

### ***Data Analysis***

We used both quantitative and qualitative methods to analyze our results. First, we used descriptive statistics to analyze the responses to each question. We then ranked the features of peer review that students across schools found most beneficial and challenging based on the number of students who agreed or disagreed with particular statements. We also compared students' responses across school contexts. Because the number of respondents from each school ranged dramatically (from 7 to 389), it was difficult to conduct more complex statistical analyses of differences in perceptions between the four school contexts. Therefore, we conducted *t* tests on each questionnaire item to compare the student responses from Metropolitan Charter ( $n = 389$ ) with the aggregated responses of the students from the other three schools ( $n = 124$ ). Because Metropolitan Charter's use of peer review was dramatically different from the other schools', *t* tests allowed us to see if the unique use of peer review at Metropolitan Charter significantly affected students' perceptions. We found that although there were statistically significant differences between the perceptions of Metropolitan Charter students and those of students from the other three schools on approximately one third of the questionnaire items, the differences between the means were often quite small and never more than 0.3 on our 4-point Likert scale (less than 10%). Given that average student responses were similar across schools, we report only significant differences of more than 5%.

TABLE 2. Teacher Interview Data

School	Number of Teachers Using SWORD	Teachers Interviewed	Instructional Time Spent "Explaining Good Reviews"	Number of Writing Assignments of 1+ Page(s)
METROPOLITAN CHARTER HIGH SCHOOL	11 (10 interviewed)	Mr. Jones, 10th-grade math	Multiple lessons	8
		Mr. Ponte, 10th-grade cultural literacy	1-hour class period	12
		Mrs. Anderson, 11th-grade science	One class period	None consistently assigned
		Mrs. Scot, 10th-grade science	40 minutes	3
		Mrs. Holmes, 12th-grade ELA	40 minutes	4
		Mr. Kerry, 9th-grade cultural literacy	10 minutes	4
		Mr. Oster & Mr. Thule, coteaching 11th-grade cultural literacy	20–30 minutes	4
		Mr. Alvin, business	20 minutes	3
		Mrs. Ferris, 9th-grade research	40 minutes	3
JESUIT GIRLS' SCHOOL	2 (1 interviewed)	Ms. Guthrie, 10th- & 11th-grade ELA	Over 1 hour	5
SEMINOLE HIGH SCHOOL	2 (2 interviewed)	Mr. Young, 9th-grade ELA	20 minutes	4
		Mr. Losher, 12th-grade ELA	40 minutes	5
CAVALIER HIGH SCHOOL	2 (2 interviewed)	Mrs. Reese & Ms. Bates, coteaching 12th-grade ELA	10 minutes	5

We also conducted factor analysis to group correlated variables and to examine relationships between students' responses to various items on our questionnaire. The factor analysis indicated that there were five potential factors in the data (i.e., eigenvalues greater than 1 and above the plateau of the scree plot). We then conducted a qualitative analysis of the correlated variables (questionnaire items) and categorized the five factors as: (1) *I learned from receiving feedback*, (2) *feedback was*

*confusing*, (3) *I understood how to give feedback*, (4) *giving feedback was difficult*, and (5) *anonymity was helpful*. The identification of these factors helped guide our analysis of the major themes in the questionnaire results.

For the open-ended questions, we identified thematic patterns through emergent coding and double-coded all student comments (see Table 3). Initial interrater reliability was 90%, increasing to 100% after coders discussed areas of disagreement.

We then analyzed the teacher interview data for themes related to the benefits and challenges of peer review (see Table 4). We compared the 12 themes in teachers' perceptions of SWoRD with the quantitative and qualitative data from the students' questionnaires. In our Findings section, we both highlight prevalent themes in student questionnaires and compare students' perspectives with teachers'. Although our questionnaire allowed us to identify students by school, a limitation of our study is that we were not permitted to aggregate students by teacher or gather information on individual students' backgrounds, such as grade level, race, gender, disability, or social class.

**TABLE 3. Codes Derived from Students' Responses to Open-Ended Questions**

Code	Example	Count
BENEFIT OF ANONYMITY	I feel that the idea of being anonymous helps me and my peers feel more comfortable because not only does it help if you have a bad paper but if a student gives constructive criticism it could lead to taunting and/or bullying.	27
POOR PEER FEEDBACK	Many times it was difficult to fix my wrongdoing inside of a essay when the person that was giving help back to my paper did not know how to fix the response themselves.	18
BENEFIT OF MULTIPLE FEEDBACK SOURCES	SWoRD was really helpful for me as an individual because I don't peer review my own paper a lot, and if I do sometimes I pass right over mistakes, so getting fresh eyes really helps.	5
ANONYMITY NOT A BENEFIT	Knowing my classmates, it would have been helpful to know who was editing my paper to determine how seriously I should take the editing suggestions.	4
DON'T KNOW WHAT TO SAY	I don't like giving feedback because I don't really know what to say sometimes.	3
TEACHER TOO	I think it would be more helpful if students gave me feedback on my work but also teachers like maybe for every assignment requires 3 students and 1 teacher to give every students feedback.	3
PREFER TEACHER FEEDBACK (INSTEAD OR IN ADDITION)	Would much rather have my papers reviewed by teachers or peers which I trust at my own discretion, not as an assignment.	3
HELPFUL PEER FEEDBACK	The students feedback offers a more creative way of thinking and more ideas.	3

TABLE 4. Codes Derived from Teacher Interviews

Code	Example	Number of Teachers
BENEFIT: DEVELOPMENT AS REVIEWER	They learned the importance of giving detailed, constructive feedback. —Mrs. Holmes	7
BENEFIT: LEARNING FROM REVIEWING	The students have certainly been improving their own writing by identifying good writing in others. —Mr. Thule	6
CHALLENGE: EFFORT IN REVIEWING	Many did well with the first paper, but dwindled in their detail as they went along. —Mrs. Reese	2
BENEFIT: RECEIVING FEEDBACK FROM MULTIPLE VOICES	They don't want to hear from their peers all the time, 'cause you're the teacher, but they don't want to hear from you all the time either, 'cause you're this authoritarian figure in the classroom. So I can get a nice balance so kids can have a voice in the grading. —Mrs. Anderson	1
BENEFIT: SCIENCE WRITING SKILLS	[Students learned] what detail-oriented scientific writing is and is not. —Mrs. Scot	1
BENEFIT: DEVELOPMENT AS WRITER	I'd say the benefit [to students was] the confidence: "I'm saying the same thing here, OK, I'm good." —Mr. Jones	1
BENEFIT: LEARNING FROM REVIEWS	That they could become better writers by being reviewed by peers. —Mr. Alvin	1
BENEFIT: ANONYMOUS REVIEWING	They really liked the fact that it was anonymous. —Ms. Bates	1
CHALLENGE: ANONYMOUS REVIEWING	Some students complained that they got really rude reviews and that people were being mean, and so maybe the anonymous factor worked against it a little bit. —Ms. Bates	1
CHALLENGE: WORKLOAD	Many students . . . expressed frustration with the additional assignment. —Ms. Guthrie	1
CHALLENGE: CONFIDENCE IN REVIEWING	Having confidence in their opinions. —Mrs. Anderson	1
CHALLENGE: ABILITY TO GIVE HIGH-QUALITY FEEDBACK	Students' ability to critique and voice useful feedback. —Mr. Kerry	1

## Findings

### *Frequency of Peer Review in High Schools*

Research has not provided a clear picture of how frequently teachers employ peer review in their high school classrooms. National surveys of writing instruction in secondary schools have not included items specific to peer review or specified whether peer review practices are included in survey items focused on process

approaches to writing or collaboration in writing (Applebee & Langer, 2013; Kiu-hara, Graham, & Hawken, 2009).

We found a sizable variation in the frequency of peer review in the four schools. As discussed above, students in three of the schools were first-time users of SWORD and reported using it once (81%) or twice (19%) over the school year. However, at Metropolitan Charter School, 57% of students reported using SWORD many times over the past year, and 20% reported using SWORD many times over the past few years. We also asked students to report how often they had participated in peer review other than SWORD throughout their high school experience. When we excluded the data from Metropolitan Charter, where peer review had become a unique part of school culture, we found that 58% of students reported two or fewer experiences with peer review outside of SWORD, 32% reported “a few” experiences, and 10% claimed “many” experiences.

Our findings suggest that peer review is a known and valued practice within high schools; most students have experienced a version of it at some point, and teachers want to use it. However, it is also an inconsistent practice for most students. In our interviews with teachers, most reported using peer review once, twice, or not at all outside of SWORD, mostly because of limited instructional time. The sporadic use of peer review reported by the students and teachers in our study raises questions about whether many schools and disciplines are realizing the full benefits of this practice.

### ***Student Perceptions of the General Benefits of Peer Review and SWORD***

Students across all four schools in our study perceived peer review in general and SWORD specifically as beneficial to their academic writing. In order to determine whether students' perception of SWORD was influenced by the novelty of the technology, we asked students to rate their agreement with two similar statements: “Using SWORD is beneficial to my writing” and “Peer review (through SWORD or another activity) is beneficial to my writing.” Responses indicated that 82% of students agreed or strongly agreed that SWORD was beneficial to their writing, and 80% of students agreed or strongly agreed that peer review was beneficial to their writing; the difference was small and not statistically significant (see Table 5). This suggested to us that students found value in the practice of peer review generally and the technology of SWORD specifically, even though it is possible that students conflated SWORD and other types of peer review in their responses.

Students' responses to these two questions were similar across the four schools, despite the varied contexts of urban, suburban, and rural schools; various grade levels; and multiple content areas. Also, *t* tests showed no statistically significant difference between the perceptions of Metropolitan Charter students and those of students from the other three schools regarding the benefits of peer review or SWORD. These findings surprised us, given that we had hypothesized that Metropolitan Charter would differ noticeably from the other schools due to much more frequent use of the SWORD system and a much more diverse student body. The similarity of findings across schools suggests that peer review was perceived as equally useful by students who had only practiced it a few times and those for

TABLE 5. Perceived Benefit of Peer Review and SWoRD by School

Statement	Metropolitan Charter School ( <i>n</i> = 372)	Jesuit Girls' School ( <i>n</i> = 69)	Seminole High School ( <i>n</i> = 46)	Cavalier High School ( <i>n</i> = 7)	Combined ( <i>N</i> = 494)
USING SWoRD IS BENEFICIAL TO MY WRITING.					
STRONGLY AGREE:	15%	6%	22%	0%	14%
AGREE:	68%	77%	63%	71%	69%
DISAGREE:	13%	13%	2%	14%	12%
STRONGLY DISAGREE:	5%	4%	13%	14%	6%
PEER REVIEW (THROUGH SWoRD OR ANOTHER ACTIVITY) IS BENEFICIAL TO MY WRITING.					
STRONGLY AGREE:	18%	12%	24%	0%	18%
AGREE:	61%	71%	59%	100%	63%
DISAGREE:	15%	10%	7%	0%	13%
STRONGLY DISAGREE:	6%	7%	11%	0%	6%

whom peer review was a regular part of instruction. Additionally, the findings suggest that peer review is a practice that can benefit students from varying backgrounds and school contexts: urban and suburban communities, high and low socioeconomic status, and multiple grade levels. Our findings are similar to those of other studies that found that students perceived peer review as generally useful (Early & Saidy, 2014). However, as we describe below, our study extends previous studies by providing information about students' perceptions of particular aspects of peer review.

### *Student Perceptions of Specific Features of Peer Review*

In this section, we describe students' perceptions of the specific features, benefits, and challenges of both giving and receiving feedback as they participated in peer review using SWoRD.

#### **Anonymity**

Research on face-to-face peer review at the secondary level has demonstrated that social face-saving can derail quality feedback and can even change what students choose to write about. When students are concerned about how their peers will perceive them if they give critical feedback or how peers will judge their writing, they tend to provide only general praise rather than suggestions for improvement (Christianakis, 2010; Freedman, 1992). In our study, anonymity was the feature of peer review that the most students reported as beneficial (see Table 6).

Additionally, factor analysis demonstrated that students' responses to the three questionnaire items focused on anonymity ("It was helpful not to know the reviewers' real names," "It was helpful that the reviewers didn't know my real

name,” and “My feedback was anonymous, so I could be more honest”) were highly correlated, suggesting that anonymity was highly valued in both receiving and giving feedback. Responses indicated that 42% of students strongly agreed, and 45% agreed, that it was beneficial that their writing was anonymous to their reviewers—the highest percentage of strong agreement for any statement. This finding was true across all four schools.

Anonymity provided students with opportunities to share their writing with less fear of personal criticism, focusing the reviewer on the writing instead of the writer. One student noted, “I feel that the idea of being anonymous helps me and my peers feel more comfortable because not only does it help if you have a bad paper but if a student gives constructive criticism it could lead to taunting and/or bullying.” Additionally, in the open-ended question asking which features of SWoRD students would keep or change (which did not prompt students toward any specific responses), anonymity was the feature mentioned most frequently (24 responses) as one to maintain.

**TABLE 6. Student Responses to Statements about Receiving Feedback**

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
IT WAS HELPFUL THAT THE REVIEWERS DIDN'T KNOW MY REAL NAME.	5%	9%	45%	42%
IT WAS HELPFUL TO GET FEEDBACK FROM MULTIPLE PEOPLE.	3%	10%	55%	33%
IT WAS HELPFUL TO GET A LOT OF FEEDBACK.	2%	10%	66%	22%
IT WAS HELPFUL NOT TO KNOW THE REVIEWERS' REAL NAMES.	7%	19%	45%	30%
THE FEEDBACK POINTED OUT IMPORTANT THINGS (NOT JUST GRAMMAR AND SPELLING) FOR ME TO WORK ON IN MY WRITING.	3%	19%	60%	17%
THE FEEDBACK HELPED ME EDIT MY GRAMMAR AND SPELLING.	3%	21%	59%	17%
I DIDN'T KNOW WHAT TO DO WHEN SOME FEEDBACK CONTRADICTED WHAT OTHERS SAID.	7%	33%	45%	15%
THE FEEDBACK I RECEIVED WAS OFTEN WRONG OR NOT USEFUL.	7%	47%	34%	12%
I THINK IT IS MORE HELPFUL TO RECEIVE FEEDBACK ONLY FROM THE TEACHER.	14%	41%	29%	17%
THE FEEDBACK I RECEIVED WAS OFTEN HARD TO UNDERSTAND.	7%	49%	35%	9%

Note.  $N = 503$ .

Students also felt it was important that *reviewers* be anonymous in peer review. Overall, students agreed that anonymity helped them be honest in their feedback (agree: 47%, strongly agree: 40%; see Table 7). One student commented, "I definitely liked the anonymous feature. This made it possible for people to give comments without any bias. The users gave their honest opinions and provided useful comments." Students seemed to place a high value on being able to respond to academic writing objectively, which they saw as a benefit of anonymity, indicating that students were highly conscious of the influence of social relationships on feedback comments.

Although students seemed to place a high value on anonymity, the topic was rarely addressed by teachers as either a benefit or a challenge to peer review in SWoRD. Only Ms. Bates, an English teacher at Cavalier, raised the issue. She saw anonymity as both a benefit and a challenge, mentioning that she knew the students liked the feature but they complained about "rude" reviews, too. Our findings suggest that teachers and other adults may underestimate the extent to which students value anonymity for emotional and social reasons. Given research showing the social positioning that is prevalent in secondary classrooms (Christianakis, 2010; VanDeWeghe, 2004), it seems logical that students valued anonymity because it allowed them to focus on improving their academic writing rather than social concerns.

**TABLE 7. Student Responses to Statements about Giving Feedback**

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
MY FEEDBACK WAS ANONYMOUS, SO I COULD BE MORE HONEST.	3%	10%	47%	40%
I GAVE HELPFUL FEEDBACK TO MY PEERS.	2%	6%	66%	26%
I UNDERSTOOD WHAT I WAS SUPPOSED TO GIVE FEEDBACK ON.	2%	9%	64%	25%
I COULD USE WHAT I READ TO IMPROVE MY OWN WRITING.	2%	10%	69%	19%
REVIEWING HELPED ME SEE WEAKNESSES IN MY OWN WRITING.	2%	13%	65%	19%
I UNDERSTOOD HOW TO RATE/SCORE THE WRITING OF MY PEERS.	3%	14%	60%	23%
IT WAS HARD TO GIVE CRITICISM IN A NICE WAY.	12%	38%	32%	17%
I DIDN'T FEEL QUALIFIED TO GIVE FEEDBACK ON SOMEONE ELSE'S WRITING.	17%	47%	28%	8%
I DIDN'T KNOW WHAT TO SAY WHEN I WAS GIVING FEEDBACK.	15%	51%	26%	7%

Note.  $N = 498$ .



While most students wanted to remain anonymous as reviewers, in response to a different question, a smaller majority agreed that not knowing the names of the students who reviewed their papers was a benefit (agree: 45%, strongly agree: 30%). In response to the two optional open-ended response questions, four students (6% of total questionnaire respondents) mentioned that anonymity was not a benefit, and three students (2% of total questionnaire respondents) suggested that anonymity should be modified (compared with the twenty-four students who stated that anonymity was a benefit).

The first common objection to anonymity, found in three comments, was students wanting to know which reviews came from classmates they deemed capable or “serious.” One said, “Knowing my classmates, it would have been helpful to know who was editing my paper to determine how seriously I should take the editing suggestions.” Similarly, Kaufman and Schunn (2011) found that college students reported that they thought their peers were unqualified to provide feedback, which led to doubt about the accuracy of peer feedback when revising their first drafts.

The second theme in students’ objections to anonymity, found in four comments, rested in their inability to return to reviewers for further clarification of comments or follow-up. One student wrote, “I would rather know whose reviewing it so I can get additional comments in person on my paper.” Boling and Beatty (2010) also found that 11th-grade AP composition students preferred knowing the name of the author and reviewer and that it helped build trust among students over time.

We found some evidence that as students gain more experience with peer review, they are less concerned about anonymity. The results of the *t* tests conducted on all three questions about anonymity showed that Metropolitan Charter students reported being slightly less concerned about anonymity than those at other schools; the mean value of their responses on these questions was 5% lower on our Likert scale than other schools’ responses. The Metropolitan Charter students may have felt more confident in their abilities as writers and reviewers and thus less concerned about revealing their authorship. Thus, anonymity may be important for students new to peer review, while students who are more experienced and confident with peer review and writing may find it unnecessary.

### **The Amount of Feedback and Multiple Sources for Feedback in the Peer Review Process**

Peer review produces a greater amount of feedback on student writing than teacher review alone (Cho, Schunn, & Charney, 2006), and students in our study agreed there was a benefit both in the amount of feedback they received and in receiving feedback from multiple people. Based on students’ responses, we ranked getting feedback from multiple people (agree: 55%, strongly agree: 33%) and receiving a great deal of feedback (agree: 66%, strongly agree: 20%) as the second and third most beneficial features of the SWoRD peer review system. Our quantitative analysis showed no statistically significant differences between schools in responses to the first statement and a slight difference in responses to the second statement, with

the students at Metropolitan Charter rating the statement that receiving a lot of feedback was helpful 5% lower than the students from other schools.

Across all schools, the mean rating in response to the statement "It's better to get feedback from just my teacher" was much lower than the aggregated ratings for the statements about receiving peer feedback, suggesting that all students preferred receiving feedback from multiple people rather than one teacher. One student commented, "Receiving additional comments from my peers was more helpful than just my teacher. One person doesn't always catch all of your mistakes but when many people look at your paper it can have a bigger chance of being better written." Other students noted that multiple reviewers can provide various points of view on the expectations of academic writing and more feedback overall than teachers can consistently produce: "I . . . really liked that multiple people reviewed, not just one, so that I had multiple opinions and multiple people looking for ways that I could improve my paper." Similarly, Early and Saidy (2014) found that high school students reported that they liked having an audience beyond their teacher, which helped them refine and clarify their ideas and opinions during revision. Teachers were, again, less likely to view this feature as a specific benefit of SWoRD than students were. In interviews, only one teacher mentioned the benefits of receiving feedback from multiple sources as an alternative to only hearing from the teacher on every assignment.

### **The Opportunity to Learn from Reviewing Peers' Writing**

Reviewing peers' writing has been shown to benefit students' own writing (Lu & Zhang, 2012). Students in our study agreed with the statements "I could use what I read to improve my own writing" and "Reviewing helped me see weaknesses in my own writing" at a nearly identical rate (respectively: 69% agreed, 19% strongly agreed; and 65% agreed, 19% strongly agreed). There were no statistical differences in mean responses from the four schools for these questions. Six of the teachers we interviewed also commented that the act of reviewing peers' papers benefited their students' writing. A teacher from Seminole High tied the growth to students "see[ing] several models of a research paper," which allowed them to improve their writing for a specific assignment. Another teacher from Jesuit Girls School found that students "recognized varied writing styles and multiple ways to present an argument." Seven teachers also mentioned learning to provide good reviews as a benefit of SWoRD, a topic that students did not address themselves. We hypothesize that teachers may see the ability to give high-quality feedback as a second way to learn to write well through reviewing, suggesting the need for more research on how students apply prior reviewing and reading experiences to their own writing and revising through incorporating rhetorical moves they have encountered in peers' writing. The perceptions of teachers echo the results of previous research, which found that the peer review task led students to be more reflective, more evaluative, and more engaged in deep thinking around writing (Early & Saidy, 2014; Zheng et al., 2015).

### **The Quality of Feedback Received**

A consistent concern for teachers and students in studies of peer review is the quality of feedback students can provide (Kaufman & Schunn, 2011). Students in our study provided insight into characteristics of peer feedback that made it more or less useful. In general, students were slightly more likely to agree that peer feedback could “[point] out important things (not just grammar and spelling)” in their writing (agree: 61%, strongly agree: 17%) than that it would help them edit “grammar and spelling” (agree, 59%, strongly agree: 17%). This perception aligns with research on effective feedback on writing (Simmons, 2003).

Students generally were split with regard to concerns that the feedback they received was “wrong or not useful” (disagree: 47%, agree: 34%) or “hard to understand” (disagree: 49%, agree: 35%). Interestingly, Metropolitan Charter students’ responses to these statements were 7% higher in agreement than students from other schools. In the optional comment space, 70% of responding students described issues with feedback they received from their peers. One said, “Many times it was difficult to fix my wrongdoing inside of a essay when the person that was giving help back to my paper did not know how to fix the response themselves.” While this student asked for reviewers to suggest solutions, another wanted specificity: “I feel like some students don’t provide enough detail when giving feedback on SWoRD and sometimes it’s hard to understand what to fix when you don’t understand the feedback.” Students perceived specificity and solutions as necessary features of useful peer feedback. This perception aligns with the work of Nelson and Schunn (2009), who found that college students are more likely to implement feedback when a comment offers a solution, gives the location of the problem, or includes a summary of the writing. As Mr. Kerry of Metropolitan Charter said, “The students were keenly aware of the importance of good, detailed, specific feedback” because they saw how poor feedback stunted the review and revision process.

In our study, students typically received feedback from three to four peers on each paper, leading to variation in the content of the comments they received. Thus, we wanted to know if some students perceived contradictory feedback as confusing. In response to the statement, “I didn’t know what to do when some feedback contradicted what others said,” students were almost evenly divided in their responses (strongly disagree: 7%, disagree: 33%, agree: 45%, strongly agree: 15%). Even though on other questions, most students indicated that the quantity and variety of feedback they received was beneficial to their writing, our findings suggest that teachers likely need to provide students with more guidance on how to utilize contradictory feedback during revision.

### **Feedback Given to Peers**

Overall, students in our study responded that they felt confident in the quality of the feedback they gave to peers. Students were far more likely to agree with the statements “I gave helpful feedback to my peers” (agree: 67%, strongly agree: 26%) and “I understood what I was supposed to give feedback on” (agree: 64%, strongly agree: 25%) than to agree with the statements “I didn’t feel qualified to give feedback on someone else’s writing” (agree: 28%, strongly agree: 8%) and “I

didn't know what to say when I was giving feedback" (agree: 26%, strongly agree: 7%). Additionally, students from Metropolitan Charter, who had more experience with reviewing peers' writing, were slightly more confident in their reviews. Thus, students in our study clearly felt they were capable of providing feedback that both was aligned with the feedback prompts and would help their classmates improve their writing.

Although students seemed to feel confident in their own abilities as reviewers, some students expressed reservations about providing critical feedback in a constructive manner. Almost half of all students agreed (32%) or strongly agreed (17%) that "it was hard to give criticism in a nice way." In the space for optional comments, four students mentioned this issue. One said, "It was truly hard to give criticism in a nice way. Some blatantly obvious mistakes I had to sugarcoat, even though I was aware that I was anonymous." In a think-aloud study of students using SWORD, we often saw students changing their comments to soften critical language or adding praise before critiques (Loretto, Godley, & Baikadi, 2015). Another student's feedback raised an issue of training: "In some cases I really didn't know what to put or how to put something in a nice way to in a way for the other person make use of my comments because I felt that I didn't go to school to be a teacher and I'm still learning also." This student's call for additional opportunities to learn about and practice giving feedback is a sentiment that has been repeated in the literature on students' use of peer review (Boling & Beatty, 2010; Simmons, 2003).

## **Implications**

### ***Implications for Writing Instruction***

Our findings suggest a number of implications for writing instruction. Most importantly, teachers implementing peer review for the first time may want to design anonymous peer review experiences for their students. Paper-based, rather than online, anonymous peer review can be accomplished by assigning students random IDs or codes to label their papers. It is also important that teachers and students discuss the purposes and appropriate means for engaging in peer review of any sort so that issues of power, perceptions of expertise, and face-saving do not get in the way of quality peer review.

Given students' perceptions of the most helpful types of peer feedback, instructing students in effective peer review techniques—such as avoiding general praise, being specific in critiques, and providing solutions for critiques—is an essential component of peer review tasks. Teachers can also help students by instructing them in how to interpret feedback, particularly contradictory feedback, and empowering them to make substantial revisions to drafts based on all aspects of peer review.

In interviews with teachers, we frequently heard concerns that they did not have time in their curriculum to introduce multiple peer review opportunities. Teachers certainly face such pressures and have seen an erosion in discretionary instructional time. Our research shows that student views align with growing

evidence that peer review benefits student writing (Lundstrom & Baker, 2009; MacArthur, 2007) and is not just a way for teachers to reduce their paper load. Furthermore, with scaffolding for revision, students can effectively use feedback they receive from peers. Given these findings and the students' positive perceptions in our study, we believe that well-designed peer review experiences can be effective uses of instructional time and can target multiple curricular goals for writing, including developing a metacognitive awareness of academic writing expectations, learning a common language for talking about academic writing, and practicing revision in meaningful ways.

### ***Implications for Research***

The results of our study indicate that many students view peer review in general and specific aspects of peer review as beneficial to their writing development. Specifically, students pointed to anonymity as a feature that allowed them to provide and judge feedback based on content rather than social relationships, and to feedback representing multiple perspectives as a feature that led to improvement in their writing. Although our results suggest that students' perceptions of the benefits of the SWORD online peer review system were similar to their perceptions of other modes of peer review, additional research is needed to test the applicability of these findings to other peer review contexts, such as peer review "off-line."

Our findings suggest that the frequency of peer review experiences in classrooms varies widely. No studies have yet attempted to connect frequency of peer review to the benefits received from engaging in the practice. It would be beneficial for future studies to explore if and how the benefits of engaging in peer review accumulate with practice. However, we hypothesized that the results of our questionnaire would demonstrate differences across school contexts, given the different ways and frequencies of SWORD implementation, and we were surprised that there were none. It seems that whether a school was large or small, higher-income or lower-income, using peer review frequently or not, students felt similarly about the benefits of peer review and were equally concerned about issues such as anonymity and their peers' ability to provide feedback that was accurate and useful. It is possible that, given participating teachers' willingness to implement a somewhat intricate system of peer review, their belief in the value of peer review was conveyed to students and reflected in students' positive perspectives. Additional studies that can disaggregate student responses by teacher, grade level, and demographic characteristics, as well as school context, may illuminate more subtle differences in students' views of peer review and the roots of those differences.

A significant feature of peer review design in need of further research is anonymity. Little is known about the benefits, drawbacks, and effects of anonymity in peer review at the high school level. Previous research on anonymity, considering both individuals developing anonymous identities on social networking sites (Bargh, McKenna, & Fitzsimons, 2002; Gray & Huang, 2015) and the use of anonymous posts in online education settings (Lu & Bol, 2007; Zhao, 1998), has shown that individuals often use anonymity "to express facets of themselves

without the fear of disapproval and sanctions” (Bargh et al., 2002, p. 34). Students in our study may have valued anonymity in SWoRD because it allowed them to express uncertainty and to share unpolished writing and ideas without fear of social disapproval. Additionally, despite one teacher’s report that some students wrote “rude” peer reviews in SWoRD’s anonymous environment, our recent think-aloud interview research (Loretto, Godley, & Baikadi, 2015) demonstrated that students took great care to write their anonymous peer reviews in supportive and less critical ways. Given the importance of anonymity to the high school students in our study, scholarship on peer review should further explore the relationship between literacy learning and social relationships (Kerschbaum, 2014), specifically how differences between anonymous peer review and face-to-face peer review influence how high school students perceive the effectiveness of those two conditions, how students engage with the peer review process differently, and the quality of feedback and student learning.

Approximately half of the students in our study indicated that they were not sure what to do with feedback that contradicted feedback from another reviewer. We suggest that studies along multiple, related strands can advance knowledge and practice in this area. First, research into review task and prompt design is needed to determine how review prompts can be designed to elicit the most consistent and useful feedback. Second, peer review introduces students to multiple points of view on writing and creates opportunities for them to choose between those points of view as authors. Future research might study the thinking processes of students as they receive reviews to determine how students assess and use peer feedback to generate revision.

Finally, our findings suggest that both students and teachers believe that students learn a great deal about writing from reviewing other students’ papers (Boling & Beatty, 2010; Lundstrom & Baker, 2009). However, more research is needed to investigate *how* reviewing leads to learning about writing and what new understandings about writing it surfaces, such as greater clarity on expectations of the assignment, content learning, or academic genres. Future research on this topic could help teachers and researchers understand what aspects of reviewing secondary students are most likely to use in revising their own work and how to capitalize on the learning opportunities provided by reviewing.

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## APPENDIX A: QUESTIONNAIRE ON STUDENTS' PERCEPTIONS OF PEER REVIEW

1. What is the name of your school?
2. In high school, I have had \_\_\_\_\_ previous assignments that asked me to do peer review (NOT counting SWORD).
  - no
  - one or two
  - a few
  - many
3. For how many assignments have you used SWORD this year?
  - One
  - Two or three
  - Many this year
  - Many over more than one year
4. How many of your classes have used SWORD this year?
5. It was helpful to get a lot of feedback.
  - Strongly disagree
  - Disagree
  - Agree
  - Strongly agree
6. The feedback pointed out important things (not just grammar and spelling) for me to work on in my writing.
  - Strongly disagree
  - Disagree
  - Agree
  - Strongly agree
7. The feedback helped me edit my grammar and spelling.
  - Strongly disagree
  - Disagree
  - Agree
  - Strongly agree
8. It was helpful to get feedback from multiple people.
  - Strongly disagree
  - Disagree
  - Agree
  - Strongly agree
9. It was helpful not to know the reviewers' real names.
  - Strongly disagree
  - Disagree
  - Agree
  - Strongly agree
10. It was helpful that the reviewers didn't know my real name.
  - Strongly disagree
  - Disagree

- Agree  
Strongly agree
11. The feedback I received was often hard to understand.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
12. The feedback I received was often wrong or not useful.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
13. I didn't know what to do when some feedback contradicted what others said.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
14. I think it is more helpful to receive feedback only from the teacher.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
15. Optional comments [regarding items 5–14]:
16. I could use what I read to improve my own writing.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
17. Reviewing helped me see weaknesses in my own writing.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
18. My feedback was anonymous, so I could be more honest.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
19. I understood what I was supposed to give feedback on.  
Strongly disagree  
Disagree  
Agree  
Strongly agree



20. I understood how to rate/score the writing of my peers.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
21. I gave helpful feedback to my peers.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
22. I didn't know what to say when I was giving feedback.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
23. I didn't feel qualified to give feedback on someone else's writing.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
24. It was hard to give criticism in a nice way.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
25. Optional comments [regarding items 16–24]:
26. Using SWORD is beneficial to my writing.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
27. Peer review (through SWORD or another activity) is beneficial to my writing.  
Strongly disagree  
Disagree  
Agree  
Strongly agree
28. My teacher asked us to use SWORD in order to: (select all that apply)  
help us improve as writers.  
help us improve our grades.  
help him/her not have to grade as much.  
try out a new technology.  
Other: \_\_\_\_\_
29. Where did you use SWORD?
30. What features of SWORD would you keep or change? Why?

## APPENDIX B: TEACHER INTERVIEW QUESTIONS ON PEER REVIEW

1. Tell me about your experience with SWoRD.
  - a. Why did you use it?
  - b. How did you use it?
  - c. How many times did you use it?
  - d. How many of your students used it?
  - e. How did you choose which classes would use it?
2. How many instructional days/minutes did you spend on:
  - a. setting up your SWoRD assignment?
  - b. setting up student access?
  - c. explaining good reviews?
  - d. uploading papers?
  - e. reviewing papers?
  - f. back-evaluating?
  - g. explaining how to use feedback?
3. What were the benefits of using SWoRD
  - a. to you?
  - b. to your students?
4. What were the challenges of using SWoRD
  - a. to you?
  - b. to your students?
5. How did your students respond to SWoRD?
6. What is your approach to peer review when you are not using SWoRD?
7. How many writing assignments of one page or more do you typically give in a year?

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