EXPLORING RELATIONSHIPS BETWEEN PEER REVIEW, REVISION STRATEGIES, AND SELF-EFFICACY IN ONLINE COLLEGE COMPOSITION

By

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I recognize the irony in writing about motivation and composition while experiencing first-hand the challenges of staying motivated and undertaking a writing task of this size. I could not have succeeded without the help and support of many people.

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This study examined the possible impact of instructor scaffolding on peer review in online college freshman composition courses. The instruction, Collaborative Multimedia Peer Review, was developed from the social cognitive model for sequential skill acquisition in order to prompt students to use feedback that would promote self-efficacy and revision skills. Students also utilized VoiceThread™, an online tool for creating multimedia presentations. The purpose of the study was to determine what relationships may exist between students’ writing self-efficacy, revision skills, and perceptions of peer review, revision, and learning. Students using Collaborative Multimedia Peer Review were compared to students using peer review worksheets to determine what differences, if any, existed in writing self-efficacy and revision efforts between the two groups of students. The qualitative data included students’ peer review feedback, follow-up responses to feedback, and students’ rough and final drafts which were part of the last essay assignment in the course. Quantitative data were collected from students’ responses to the Writing Self-Regulatory Efficacy Scale and a survey on student perceptions. While findings showed the groups to be very similar in their
revision skills and in their final self-efficacy scores, analysis revealed that the students using Collaborative Multimedia Peer Review began the course with a lower self-efficacy average than those in course sections using peer review worksheets. The improvement in scores on the Writing Self-Regulatory Efficacy Scale at the end of the course could indicate Collaborative Multimedia Peer Review may have contributed to improvements in self-efficacy. The discussion considers how results contribute to the development of more standard, effective composition instruction and peer review practices for online composition courses. Also, implications for how instructors categorize writing skill levels, frame composition instruction, and deliver feedback are discussed.
CHAPTER 1
INTRODUCTION

Context

Written communication skills are a fundamental component of K-12 and college education, and employers expect college graduates to have mastered those skills as well as critical thinking and the ability to collaborate. Communication has been identified by U.S. education researchers, practitioners, and policy makers as one of the 4C’s – critical thinking, communication, collaboration, and creativity skills – within the framework of 21st century skills that educational institutions should focus on in the age of global society (Partnership for 21st Century Learning, 2007). Locally, “communications” is also one of five core areas for the Florida Department of Education’s general education requirement, which means every regionally accredited public college and university in Florida must require its degree-seeking students to successfully complete at least one college composition class. Additionally, the Association of American Colleges and Universities published the results of a national survey of four hundred employers, which show 83% of those surveyed believe the ability to work in teams is very important, and 82% believe the ability to effectively communicate in writing is very important; however, many employers do not feel that colleges and universities are adequately preparing students in communication and collaboration (Hart Research Associates, 2015).

In the field of composition studies, which includes theory and practice in teaching and learning composition at the college level, a critical component of students’ ability to learn college-level written communication lies in peer review, which is a method of collaborative learning also referred to as peer editing, peer critiquing, peer evaluation,
and peer assessment (Breuch, 2003; Bruffee, 1984; Ede & Lunsford, 1984; Magnifico, 2010; Mitchell & Taylor, 1979; Ward, 1994). Suthers (2006) defines collaborative learning as all “socially contextualized forms of learning” in which learners construct knowledge from social interactions (p. 318). Peer review is a collaborative learning practice where students review each other’s writing and discuss ways in which peers’ writing meets a set of criteria and can be improved. Its value in the teaching of composition lies in emulating feedback from an authentic audience, allowing students to learn how to anticipate audience expectations and to revise.

Though the writing process has multiple stages, the stage impacted by peer review, which largely determines the level of writing performance, is the revision stage. Revision is a complex task that can encompass previous stages—a person revising a first draft may revisit the planning and drafting stages (Faigley & Witte, 1981)—and how individuals approach revision determines how skilled they are as writers. For skilled writers, revision involves an awareness of audience and context as well as focus on global issues that impact meaning and coherence, which include the development, style, and organization of a text more so than surface errors such as comma usage or capitalization (Faigley & Witte, 1981; Kellogg, 2008; Sanders-Reio, Alexander, Reio, & Newman, 2014; Yang, 2011; Zimmerman & Bandura, 1994; Zimmerman & Kitsantas, 2002).

Whether or not a person fully engages in revision by tackling the more challenging global issues of content and organization may be influenced by that individual’s self-efficacy. Those with higher confidence in their abilities, or higher self-efficacy, are more likely to persist in difficult tasks, to self-regulate (Bandura, 1991,
The term “self-regulated learning” refers to an individual’s self-directive attempts to transform mental abilities into academic performance (Zimmerman, 2008). Self-regulation for writing involves cognitive, social, motivational, and behavioral processes (Zimmerman & Risemberg, 1997). Peer review has also been shown to impact learner’s self-efficacy, which in turn can influence self-regulation and performance. In composition courses, students’ self-efficacy has been shown to impact their writing performance as students with more confidence in their ability to write tend to be more successful at completing complex or difficult tasks, like writing (Baaijen, Galbraith, & de Glopper, 2014; Bandura, 1991, 1997; Bruning & Kauffman, 2015; Jones, 2008; MacArthur & Philippakos, 2013; Pajares, 2003; Schunk & Zimmerman, 1997; Zimmerman & Bandura, 1994; Zimmerman & Kitsantas, 2002; Zimmerman & Risemberg, 1997).

These three facets of college composition—peer review, self-efficacy, and one’s ability to revise—all seem to be interconnected since feedback impacts an individual’s self-efficacy, which in turn influences the extent to which one self-regulates well enough to engage in challenging and complex tasks, such as revision.

Problem

Though peer review is typically a staple in first year college composition courses, there is no agreed upon strategy or set of strategies for implementing peer review, and much of the research on its effectiveness is inconsistent (Armstrong & Paulson, 2008; Paulson, Alexander, & Armstrong, 2007). From an instructor perspective, peer review can be ineffective because students are ill equipped to offer substantive feedback to their classmates (Bedore & O’Sullivan, 2011; Cho, Schunn, & Wilson, 2006; Patchan,
Hawk, Stevens, & Schunn, 2013). Student perspectives on the value of peer review can vary. Students often do not trust themselves or their peers to provide helpful feedback (Brammer & Rees, 2007; Kasanga, 2004; Kaufman & Schunn, 2011; Ludemann & Mcmakin, 2014). Conversely, there is evidence demonstrating that peer review can be effective (Carifio, Jackson, & Dagostino, 2001; Cho, Schunn, & Charney, 2006; Min, 2005; Patchan et al., 2013; Yang, 2011).

This discrepancy in the value of peer review could be the result of irregularities in how peer review activities are designed and executed or in how much guidance is offered by the instructor. Despite its theoretical basis in social learning, the way peer review is implemented does not always promote collaborative learning because some methods for peer review, like checklists or handouts that are popular in college composition courses, do not prompt student dialogue (Hauptle, 2006; Keeley, 2014).

The need for an effective peer review process is especially important in online freshman composition courses because there is no opportunity for a traditional face-to-face dialogue between learners, yet collaborative learning and social presence are integral in online contexts where instructor support is more diminished (Curtis & Lawson, 2001; Garrison, 2007). At the institution where I teach, online courses are typically taught in Blackboard™ LMS with a course shell (pre-made course content) developed by a subject matter expert and instructional designers. In the course shell for ENC 1101 English Composition I, peer review is a graded assignment, but it is not truly collaborative. The instructions in the shell indicate students receive full credit for peer review by completing and posting peer review worksheets to the other members of their
peer review group on their group’s discussion board. Replies to posts are not required nor are they explicitly encouraged.

Also of the utmost importance are peer review practices that promote writing self-efficacy, which has been shown to aid students as they self-regulate to revise. Most studies on the impact of writing self-efficacy on performance examine outcomes such as course grades or success on a final essay draft as an indicator of actual writing competence instead of students’ revision process, which is what distinguishes novice writers from skilled writers (Ludemann & Mcmakin, 2014; MacArthur & Philippakos, 2013; Raedts, M.; Rijlaarsdam, G.; van Waes, L. & Daems, 2007; Sanders-Reio et al., 2014; Zimmerman & Bandura, 1994). Alternately, there are some studies that examine the impact of feedback on revision strategies without accounting for self-efficacy (Baker, 2016; Carifio, J.; Jackson, I.; & Dagostino, 2001; Cho & MacArthur, 2011; Covill, 2010; Yang, 2011), though it has been shown that feedback can influence self-efficacy. While there are some studies that examine all three, feedback, self-efficacy, and revision, such research may focus on instructor feedback rather than peer feedback (Duijnhouwer, Prins, & Stokking, 2012) or examine contexts other than freshman writing courses (Kaufman & Schunn, 2011). As Baker (2016) explains, there is a need for additional research evaluating peer review and students’ writing process, and to that I would add that there is a gap in the literature on peer review and students’ revision process in online college composition courses that also consider the role of self-efficacy, an important non-cognitive variable that impacts motivation to learn.
Problem Statement

Though the practice of peer review is believed to be vital for learners who are developing writing skills in college composition courses, there is little continuity in what methods of peer review work best, and the role of self-efficacy and revision skills in online freshmen composition courses needs to be examined in more depth.

Proposed Approach to Peer Review

Online composition courses are not consistent in how peer review is developed. Some courses, like the online composition courses at Florida State College at Jacksonville, use a peer review worksheet with questions students must answer about a classmate’s essay and discussion board. Others may use a similar approach, but instead of a discussion forum in an LMS, they may require to post comments on student-developed blog posts (Delgado & McDougald, 2013; Vasileiou, 2016), and for some courses, online reciprocal peer review systems are used like SWoRD, scaffolded writing and rewriting in the discipline, though not necessarily in composition courses. For the SWoRD system specifically, a rubric and form are utilized for peer review. Reviewers download essays to be reviewed, log into the system, paste comments into a form and choose point ratings associated with the rubric (Cho, 2006; Cho & MacArthur, 2010; Cho, Schunn, & Charney, 2006; Kaufman & Schunn, 2011). For all of these methods, replies to the completed forms or conversations between students about the feedback are not required. Also, while the importance of revision is examined in some cases (Cho & MacArthur, 2010; Kaufman & Schunn, 2011) the impact of peer review on self-efficacy is not considered in developing the peer review process.

I developed a peer review scaffolding tool that supports a more collaborative learning-based peer review process that also incorporates rich multimedia for student
discussions. Within online asynchronous discussion forums, where collaborative learning is expected to occur, effective collaboration may not automatically occur, especially where discussion threads lack depth and fail to involve strong student interaction (Mooney, Southard, & Burton, 2014). Interaction is a requirement for collaborative learning (Zhao, Sullivan, & Mellenius, 2014), yet in the previously described methods of online peer review, only one-way interactions are employed. In my approach to peer review, two-way interaction is emphasized since students are shown how to respond and required to respond to each other’s feedback. In addition to emphasizing qualities of collaborative learning, my approach is designed to teach students how to provide feedback that should promote self-efficacy, a necessary component for self-regulation and developing revision skills (Baaijen, Galbraith, & de Glopper, 2014; Bandura, 1991, 1997; Bruning & Kauffman, 2015; E. Jones, 2008; MacArthur & Philippakos, 2013; Pajares, 2003; Schunk & Zimmerman, 1997; Zimmerman & Bandura, 1994; Zimmerman & Kitsantas, 2002; Zimmerman & Risemberg, 1997).

**Purpose of the Study**

This study aimed to explore possible relationships (a) between peer review scaffolding, hereinafter called Collaborative Multimedia Peer Review (CMPR) instructions, for giving feedback and students’ writing self-efficacy, (b) between CMPR instructions on the revision process and students’ actual revision process from rough to final draft, (c) between students’ writing self-efficacy and revision process, and (d) between students’ perceptions of giving and receiving feedback and their writing self-efficacy and revision process in multiple sections of an online freshman composition course. It also aimed to examine what differences, if any, may exist in writing self-
efficacy and revision efforts between sections using CMPR instructions and sections using a more traditional peer review form to conduct peer review and revision. In an effort to simulate a more interactive collaborative environment such as face-to-face collaboration, students in randomly selected sections interacted in VoiceThread™, an online technology. Unlike the typical text-based discussion boards, VoiceThread™ allows users to create multimedia discussion threads by developing screencasts from uploaded files on which others can post voice, video, or text comments. Students in comparison sections went through the traditional process of peer review and revision, which was built into the course as completion of a peer review worksheet.

**Research Questions**

In investigating the possible relationships between CMPR and students’ writing self-efficacy and revision process, the following research questions were addressed:

1. To what extent does Collaborative Multimedia Peer Review for giving feedback in peer review contribute to students’ writing self-efficacy in an online freshman composition course?

2. To what extent does Collaborative Multimedia Peer Review contribute to students’ revision process in an online freshman composition course?

3. What relationship, if any, exists between Collaborative Multimedia Peer Review, students’ writing self-efficacy, and students’ revision process in an online freshman composition course?

4. What are students’ perceptions of receiving and providing feedback using voice and video comments in Voicethread™ and how do they relate to students’ self-efficacy and revisions strategies?

**Significance**

The significance of this study lies in its contribution to solving an important problem of practice – that is, improving design and implementation of online college composition, as well as research on peer review’s impact on essential aspects of
student learning in composition courses, namely self-efficacy and the revision process. It fills a gap in educators’ knowledge and research literature on potential interactions between scaffolding, peer review, self-efficacy, and revision in online freshman composition courses, an important issue in the field of composition studies as a freshman composition course of some type is required for degree completion at all colleges and universities nationwide.

This study also fills a need for additional data-driven research and practice identifying the qualities of peer review and peer review scaffolding that best facilitate the peer review process and promote useful student feedback that improves student self-efficacy and revision, particularly for instructors of freshman college composition who may not have a background in rhetoric and composition theory or learning theory. Most higher education institutions accept a master’s degree in English (which usually means English literature) in order for a candidate to be considered qualified to teach composition, so many of those teaching in-coming college freshmen have a background in English literature and are not initially familiar with the pedagogy associated with teaching composition (Association of Departments of English, 2009). Such was my experience when I first began teaching college-level writing courses, and my understanding of the value of peer review depended on how it was presented in instructor’s editions of student textbooks, which often utilized peer review worksheets as a guiding principle for how peer review should be implemented.

Additionally, the treatment for this study incorporated VoiceThread™, and multimedia tools for online media-rich collaboration are relatively new. VoiceThread™ is marketed as a tool for developing interactive lectures and multimedia discussions. While
there is a body of research on screencasting technologies used by instructors for giving feedback (Crook et al., 2012; Vincelette & Bostic, 2013; Yuan & Kim, 2015), this study adds to the current body of research on the use screencasting and multimedia technology, specifically VoiceThread™, for multimedia-enhanced feedback and dialogue between students. The students using VoiceThread™ in this study log in to access rough drafts, use VoiceThread™ to develop multimedia feedback and to create follow-up discussions on that feedback.
CHAPTER 2
LITERATURE REVIEW

This chapter discusses the theoretical foundations for some of the more well-known writing process models and principles of social cognitivism underpinning collaborative writing. It illustrates the connections between the social aspects of learning to improve writing skills (modeling and feedback) and self-efficacy and learning, which are all important for developing writers to improve their revision skills. Then, perceptions of peer review are discussed as an important variable influencing student engagement in collaborative writing as well as modalities for engaging students in peer review. In practice, there is little consistency in how instructors format peer review, so a proposed approach to peer review is described based on social cognitivism and writing process theory that emphasizes qualities of collaborative learning often correlated with students' writing self-efficacy and improvement in students’ revision skills.

Understanding Writing and Composition

In many ways, the development of composition theory has mirrored advances in learning theory. The field of composition studies has its basis in various philosophical traditions related to language acquisition, linguistics, philology, and the creative process of writing. Nystrand, Green, and Wiemelt (1993) trace the progression of composition theory from formalism, strongly influenced by behaviorism; to reader-response, with a basis in cognitive psychology, the psycholinguistic revolution, and constructivism; to structuralism and post-structuralism, influenced by cognitive constructivist and socio-constructivist perspectives of language, linguistics, and composition. Modern language and composition scholars maintain that language, speaking, and writing are dialogical,
and meaning is socially constructed, dependent on context (Nystrand, Green, and Wiemelt, 1993).

Specifically, Bakhtin (1981) poses the concept of signs (spoken as utterances or written as words) as being subject to certain conditions, like social conditions, that make context critical to meaning-making: "Within the arena of almost every utterance an intense interaction and struggle between one's own and another's word is being waged, a process in which they oppose or dialogically interanimate each other" (p. 354). Bakhtin (1981) terms this concept "heteroglossia," and dialogue is the interaction between the sign (the part) and social groups or communities (the whole). What a text means is determined by the interpretation of both the writer and the reader (Nystrand, Greene, Wiemelt, 1993).

As writing has become viewed as dialogic, approaches to writing pedagogy have also evolved from focusing on writing as a product and teaching students to emulate patterns in "ideal" texts, to focusing on writing as a process, teaching students a sequential set of steps or stages; however, post-process theory critiques the idea of writing as a clear set of steps and better situates writing and the teaching of writing as dialogical (Breuch, 2003). Essentially, writing is public, interpretive, and situated, utilizing dialogs: inner dialogs, dialogs between students, dialogs between students and the teacher, and dialogs between students and social institutions (Breuch, 2003). From this perspective, the role of the audience in writing becomes critical in teaching students how to become more skilled writers, able to adapt to various contexts.

**Social Cognitivism**

Writing is an important part of learning in most knowledge domains. Vygotsky, one of the most notable learning theorists linking learning to language acquisition and
use, posits that language acquisition and cognition, the psychological process of
learning, are socially situated; this is the foundation of social constructivism. “A primary
way in which mental functions are altered by the mediation of language signs is that
knowledge, and thereby learning, becomes a social, communicative, and discursive
process, inexorably grounded in talk” (Duffy, 1996, p. 12). However, the idea of
learning as a social process is also a precept of social cognitivism. While Duffy (1996)
emphasizes the distinction between cognitivism as “an individual psychological process”
and social constructivism as “social and cultural processes,” social cognitivism allows us
to examine the interaction between both processes. In his description of social cognitive
theory, Bandura (1991) describes a triadic structure of reciprocal causation that includes
cognitive factors, behavior, and environment. An individual’s influence over his or her
environment and the environment’s influence over the individual is bidirectional, and as
such, learning is a product of shared beliefs as well as individual beliefs (Bandura,

Models for Learning Written Composition

Some prominent models of the writing process are based in principles of
cognitivism. Most notable is the Hayes and Flower Cognitive Process Model of the
Composing Process (Figure 2-1) which identifies the roles long term memory, task
environment, and self-monitoring play in an individual’s progression through a recursive
process of planning, writing, and reviewing. Additionally noteworthy is Kellogg’s Model
of Working Memory in Writing, which examines three key systems that encapsulate the
writing process--formulation, execution, and monitoring—and which emphasizes how
these systems make demands on an individual’s working memory (Chanquoy, 2009).
While these models acknowledge the importance of context and self-regulation, or
monitoring, they do not fully explore the impact of a peer audience or a discourse community on an individual’s ability to revise.

Magnifico (2010) elaborates on how conceptualizing the audience as the writing context bridges key ideas in cognitive and sociocultural perspectives. From a cognitive perspective, audience is viewed as “a trigger for prior knowledge” since writers consider audience in order to frame their own ideas about what style and genre to use (Magnifico, 2010, p.175-176). According to Ong (1975), a successful writer “can fictionalize in his imagination an audience he has learned to know not from daily life but from earlier writers who were fictionalizing in their imagination audiences” (p.11), yet Ong’s perspective does not take into consideration the differences in what knowledge each individual brings to a writing task. Further, Ong’s view fails to explain how individuals construct their knowledge of audience-building. In a critique of Ong’s position, Ede and Lunsford (1984) argue that the audience should not be devalued in a model for the process of writing. They consider instances where a writer should consider feedback from an actual person as a representative of the intended audience. Kellogg (2008) also posits that the ability to fictionalize one’s audience requires experience in a discourse community, something that could take several years of experience writing in that particular domain. It is reasonable to assume, then, that incoming freshmen are unlikely to have adequate experience with academic discourse to successfully anticipate the demands of a fictionalized audience.

In focusing specifically on how college freshmen negotiate academic discourse, Flower (1990) explains how students experience a transition that is both cognitive and social in nature and why students need to learn the socially constructed norms in which
academic discourse operates. She proposes a strategic knowledge framework as a way learners bridge cognition and social context that includes goals, strategies, and awareness; though she emphasizes the importance of students learning to adapt to an academic context for writing, the dialogue she discusses is primarily an internal one as students consider readings and how to respond to readings with their writing.

From a socio-cognitive perspective, audience has a more active function as including members of a community who offer feedback and who help the writer consider community norms and think about his or her writing in a new way (Magnifico, 2010). Mitchell and Taylor’s (1979) Audience Response Model for Writing (Figure 2-2) considers the writer in reference to his or her audience and classifies writing as being good or bad according to what the audience sees as being effective or ineffective rather than according to “its conformity with extrinsic standards” (p. 250).

Ede and Lunsford (1984) argue that the Audience Response Model for Writing overemphasizes the power of the audience’s judgment on a written product and contend that the roles of the audience and the writer in producing “good” writing are of equal importance. The concept of audience model by Ede and Lunsford (1984) illustrates the various roles of an invoked audience and an addressed audience in an “attempt to indicate the complex series of obligations, resources, needs, and constraints embodied in the writer’s concept of audience” (p. 165). However, neither of these models illustrates how students learn to negotiate audience as part of the learning process.

Mitchell and Taylor (1979) claim that a writer’s audience can have an impact on motivation, yet Ede and Lunsford (1984) disagree because they believe such a claim
implies an audience has more control over the writer’s motivation than does the writer. Nonetheless, feedback has been shown to impact one’s self-efficacy, which in turn impacts self-regulation and performance. The social cognitive model for sequential skill acquisition, while not solely used as a model for writing instruction, considers self-efficacy beliefs and provides a scaffold for helping learners transition from needing social support to self-regulation (Zimmerman & Kitsantas, 2002). It includes four levels, the first two of which, observation and emulation, are forms of social learning that are intended to lead to the last two levels, self-control and self-regulation (which will be discussed in more detail in the following section) (Zimmerman & Kitsantas, 2002).

Though the social cognitive model for sequential skill acquisition does not specifically elaborate on all facets of the writing process, it provides a framework for an instructional design that could apply to social cognitive learning across disciplines, and it has been chosen as the model used for this study because (a) it recognizes the importance of self-efficacy to skill acquisition, (b) accounts for the dialogic nature of learning as well as writing, and (c) can be utilized for any aspect of teaching the writing process, in this case, specifically how to give peers feedback and how skilled writers approach revision.

**Self-Efficacy and Self-Regulation in Writing**

From a social cognitive perspective, self-efficacy and the ability to self-regulate are dependent on interaction with others. Self-efficacy, a person’s belief in his or her ability to perform a task, is predictive of a person’s ability to self-regulate. It is the “self directive process through which learners transform their mental abilities into task related academic skills” and is needed in order for learners to attempt to solve complex problems (Zimmerman & Schunk, 2001, p. 1). Zimmerman's (2002) phases and subprocesses of self-regulation locate self-efficacy in the forethought phase. This phase
includes beliefs that precede learning, but beliefs are also a result of previous learning experiences. Zimmerman (2002) illustrates how the forethought phase leads to the performance phase, which is followed by the self-reflection phase and cycles back to the forethought phase. For example, a student who repetitively receives poor grades in a writing course would form beliefs about his or her inability to write, which equates to low self-efficacy towards writing tasks, and these beliefs would play a role in the student’s self-regulatory practices for future writing tasks.

In a study of 95 freshmen taking a university writing course (some advanced writing and some regular writing), Zimmerman and Bandura (1994) surveyed students to determine whether their self-efficacy for writing, academic self-efficacy, and self-reported SAT verbal aptitude scores were correlated with students’ writing attainment, measured through final course average. They found that students’ self-efficacy for writing influenced their perceived self-efficacy for academic achievement, while their perceived self-efficacy for academic achievement was found to impact final course grades. Perceived self-efficacy for academic achievement was also found to directly and indirectly impact personal grade goals which correlated with final course grades (Zimmerman & Bandura, 1994).

Sanders-Reio and colleagues (2014) also examined the relationship between student beliefs about writing and their writing performance in a study of 738 students taking an undergraduate educational psychology course. To measure participants’ beliefs about their own writing, the researchers developed a Beliefs about Writing Survey and aligned it with Kellogg’s (2008) stages in the cognitive development of writing skills: knowledge-telling, knowledge-transforming, and knowledge-crafting. They
measured writing self-efficacy with the Writing Self-Efficacy Index, and to determine whether students fear and/or avoid writing, a revised version of the Daly Miller Writing Apprehension Test was used. To measure students’ writing performance, Sanders-Reio et al. (2014) used grades on a “structured, take-home assignment,” not an essay per se, scored by two instructors for the educational psychology course with high interrater reliability. They found that all three measures predicted writing performance with beliefs about writing being the strongest predictor and self-efficacy for mechanical skills being the second strongest and the only one of the self-efficacy subscales (not self-regulatory writing skills or substantive writing skills which were also subscales) that was a significant predictor of writing performance. However, there was a “modest” association between writing self-efficacy and grades on the writing performance assessment (Sanders-Reio et al., 2014, p. 9), though the authors also note that there are indications students’ self-efficacy beliefs overestimated their writing skills.

**Observational Learning, Modeling, and Writing Self-Efficacy**

Despite being termed “self”-regulated learning, self-regulation is not an “asocial,” act but “each self-regulatory process or belief […] can be learned from instruction and modeling by parents, teachers, coaches, and peers” (Zimmerman, p. 69, 2002). Modeling can be of particular importance to a person’s self-efficacy if his or her self-efficacy is disproportionate to a complex task; students unfamiliar with more complex tasks may have “exaggerated appraisals of their abilities” which, once they fail to perform as they expect to, can be detrimental to their self-efficacy on future tasks: “Therefore, to judge what one is capable of attaining requires adequate knowledge of how the social system works and an appraisal of one’s ability to manage the institutional requirements” (Bandura, p.66, 1997). In Bandura’s (1991) discussion of the structure of
self-regulatory systems—which include self-observation, judgmental process, and self-reaction—he explains the significance of the judgmental component, which houses a subcategory: social-referential comparison, or one’s comparison of his or her own performance with the performance of others. He also classifies this in a later publication as a source of self-efficacy called “vicarious experience” and notes that “seeing or visualizing people similar to oneself perform successfully typically raises efficacy beliefs in observers that they themselves possess the capabilities to master comparable activities” (Bandura, 1997, p. 87). Observational learning or modeling can serve as a view into the social system that would allow a learner gain a better understanding of the skills needed to successfully complete a complex and somewhat unfamiliar task and provide a realistic expectation for being successful, based on seeing others succeed at the task.

In discussing research on the impact of self-efficacy and motivation on writing development, Bruning and Kauffman (2015) cite studies that have shown that self-efficacy and writing skills are improved when students are involved with modeling strategies and a focus on process goals (not outcome goals initially), followed by opportunities to practice. Once automation has occurred, learners can focus on outcome goals. Also, in a relevant study of revision skills and self-regulation, Zimmerman and Kitsantas (2002) found that students’ engagement with observational learning impacted their learning when they participated in revision practice. Specifically, Zimmerman and Kitsantas (2002) found that coping models elicited more effective practice and revision strategies; coping models differ from mastery models in that coping models begin by making errors which are gradually identified and eliminated. In
their study of 72 undergraduate students who were randomly assigned to one of six conditions with or without mastery or coping modeling and with or without social feedback, the researchers found that students in the modeling conditions outperformed those with no modeling though those who used the coping model outperformed those who used the mastery model. While students’ performance improved in the modeling groups, their self-efficacy beliefs did not improve but decreased as they realized, after observation, that they had overestimated their ability to perform. Though the adjustment was a downward adjustment, this is still a beneficial change in self-efficacy beliefs since overestimating one’s self-efficacy can be detrimental once one fails to perform as expected. Zimmerman and Kitsantas (2002) note that students’ posttest self-efficacy scores ultimately correlated with their posttest writing skills, which is a desired outcome for students to self-regulate through the writing process.

The value of observation or modeling to learning is further supported with studies such as Raedts, Rijlaarsdam van Waes, and Daems’ (2007) examination of whether observational learning can ensure that students’ self-efficacy in writing is relative to the complexity of the task, and whether observation of peer models would improve their knowledge of how to write a literature review, more so than traditional instruction. In their study of 144 students taking a first year research methodologies and psychology course at a Flemish university, Raedts, Rijlaarsdam van Waes, and Daems (2007) used a pretest – posttest quasi-experimental design. Students took pretests measuring intelligence, reading skills, self-efficacy beliefs, and task knowledge. The experimental group received an intervention with videos containing peer models demonstrating excerpts of the writing process; following the videos, students completed observational
exercises based on what they learned from the videos. Posttests were given on task knowledge, writing self-efficacy, and writing performance. At both the pretest and the posttest stage, the researchers calibrated students’ writing self-efficacy with writing performance pre and posttests. Rijlaarsdam van Waes, and Daems (2007) found that students in the experimental group had more accurately calibrated writing self-efficacy and writing performance scores than those in the control group who had overestimated their writing competence by about 7%. Students in the experimental group did not demonstrate more knowledge of what a literature review should look like, but they did have significantly more knowledge of writing strategies, particularly information gathering and planning, than those in the control group. Overall, students in the observational learning group outperformed those in the control group in the quality of literature review produced at the end of the experiment, demonstrating how observation and modeling can not only improve learning, but can also align students self-efficacy with their ability to perform a complex task (Raedts, Rijlaarsdam, van Waes, & Daems, 2007).

Through a two-stage process of developing curriculum for developmental writing courses at a two-year college, MacArthur and Philippakos (2013) found that instructors modeling self-regulation strategies specifically for the writing process led to student gains in writing confidence and in writing achievement. Using design research in order to develop and evaluate specific instructional strategies, the researchers collected data through interviews, essay scores for an essay at the beginning of the term and one at the end, and a questionnaire with scales for “self-efficacy for writing, achievement goal orientation for writing, beliefs about writing, and affect toward writing” (MacArthur &
Philippakos, 2013, p. 183). The curriculum from the first term was evaluated and revised for the second term. The instructional components included a discussion on the elements of a certain genre of writing, examples of weak and successful essays (the former as a basis for characteristics of the genre and the latter for evaluating whether a paper exhibits the characteristic necessary for a genre), instructor modeling through think-alouds for the writing process from planning to draft to revision, student collaborative practice of the modeled strategy with instructor guidance, student application of the strategy on an essay, practice evaluating papers written by unknown peers, peer review in pairs, and finally student editing papers with instructor feedback. This cycle was repeated for another paper with less instructor guidance. The instructional components were revised after the first implementation to include reviews and quizzes on the genres; added support for text organization and the connections between the characteristics of a genre, organization and text evaluation for revision purposes; goals strategy instruction to improve self-regulation; more activities for practicing refuting an opposing position for the persuasive genre; an emphasis on giving feedback in peer review as a way to better evaluate one’s own writing as well as procedures for teaching peer review; and lessons on editing that included student collaboration, applying editing practices to the student’s own paper, and one-on-one conferences with the instructor. MacArthur and Philippakos (2013) collected data from 34 students in the second term of the study in order to measure writing achievement, motivation (self-efficacy, goals, and beliefs), and students’ knowledge of genres and writing strategies. They found that most students made statistically significant gains in writing quality, and there were increases in self-efficacy, affect, and mastery motivation.
as opposed to performance motivation. Interviews with 16 students supported the previous findings. While this study adds to the body of research on the importance of modeling and observational learning, the researchers did not specifically correlate modeling with gains in self-efficacy though they note that half of those interviewed indicated an increase in confidence for writing as a result of the course. They also identified not including a control group as a limitation of the study, meaning the strategy of instruction cannot be identified as the cause of the students’ gains.

**Feedback and Writing Self-efficacy**

Feedback is another social influence on a learner’s sense of self-efficacy. Bandura (1991) explains how individuals who receive feedback that they are performing well, compared to their peers, have good self-efficacy but become complacent, are satisfied with mediocre performance, and set less challenging personal goals; conversely, negative comparative feedback leads to lower self-efficacy and a decline in performance. “By contrast, seeing oneself gain progressive mastery enhanced a sense of personal efficacy, fostered efficient analytic thinking, and transformed self-evaluation from self-discontent to self-satisfaction with accelerating progress” (Bandura, 1991, p. 272-273). Bandura (1997) identifies social persuasion as another source of self-efficacy, and this persuasion often comes in the form of “evaluative feedback.” In order to foster self-efficacy and motivation that drive self-regulatory strategies, feedback must have immediate benefits, be neither overly complementary nor negative but must, instead, indicate that a person is improving without having necessarily achieved complete mastery of a topic (Bandura 1991; 1997).

In a study on the impact of writing feedback perceptions and writing self-efficacy perceptions on self-regulation, Ekholm, Zumbrunn, and Conklin (2014) found that both
perceptions were predictive of writing self-regulatory perceptions. The researchers surveyed 115 undergraduate students, freshmen through seniors, taking English and education courses at a university. Participants’ scores on a writing feedback perceptions scale, writing self-efficacy scale, and writing self-regulation aptitude scale were analyzed using correlation analysis and a series of regression analysis in order to inspect the effect of self-efficacy perceptions on feedback perceptions and the effect of feedback perceptions on self-regulation aptitude perceptions (Ekholm et al., 2014). While the authors’ findings support a positive relationship between feedback, self-efficacy, and self-regulation, they note limitations in the data being self-reported, in its generalizability, and in the possibility that other factors can influence self-regulation.

Ludemann and Mcmakin (2014) assessed the writing confidence of 37 first-year students taking a general psychology course in their study on the perceived helpfulness of peer review, called “peer editing” in the study, and how it related to student grades on writing assignments. The authors indicate that the edited papers provided feedback on students’ writing, but editing is mostly associated with making surface-level changes to writing while “peer review” is more widely accepted as focusing on rhetorical issues like audience, focus, development, etc. (Armstrong & Paulson, 2008). Despite calling the activity peer editing, Ludemann and Mcmakin (2014) recorded student comments that indicated the editing exercise may have included responding to format and clarity of writing as well as surface-level changes, so the researchers’ intention was to engage students in an activity that included both peer review and editing. The researchers collected data on writing confidence through the Daly-Miller Writing Apprehension Test and had students complete a survey on exchanging feedback with peers as part of the
peer review process for assigned writings. For two assigned writings, peer review was required prior to final submission. Interestingly, Ludemann and Mcmakin (2014) found that students believed that providing feedback (not receiving it) was helpful in improving their own writing, but they found no association between students’ writing confidence measured through the Daly-Miller Writing Apprehension Test and the results from the perceived helpfulness of peer editing and essay scores. They attribute this result to their small sample size, the need for a baseline assessment to determine variations in writing ability, and a need for a more sensitive assessment of writing confidence. Another possible limitation of this study may have been its detachment from writing process theory. There is no mention of whether students were taught characteristics of the writing process other than peer review, and the specific requirements for the writing assignments which were focused on psychology concepts. Papers were exchanged once, and 20 minutes were allowed for peer review. Then 5 minutes were allotted for reading a peer’s comments on one’s own paper and asking for clarification; however, reviews were anonymous, so students could not ask questions directly of the person who reviewed his or her essay.

In several studies on feedback, participants are left anonymous (Cho, 2006; Cho & MacArthur, 2010; Coté, 2014; Johnson, 2001; Kaufman & Schunn, 2011; Patchan et al., 2013) in part to keep students unaware of their reviewers’ level of expertise (Cho & MacArthur, 2010; Patchan et al., 2013). Some argue keeping reviewers anonymous allows them to offer more critical feedback and avoid any bias against the individual whose writing is being reviewed (Coté, 2014; Johnson, 2001). However, many studies on collaborative learning, anonymity can result in instances of “social loafing,” which is
when individuals lack the motivation to contribute to group efforts (Kerr & Bruun, 1983; Kreijns, Kirschner, & Jochems, 2003; Zhao et al., 2014). Also, in their studies on students’ perceptions of video feedback versus written feedback, Hung (2016) and Jones, Georghiades, and Gunson (2012) found that students preferred seeing their reviewers. For this study, peer review was not conducted anonymously so as to encourage face-to-face social interaction and motivate group members to engage in the peer review process.

**Error Management Training and the Writing Process**

The concept of writing as a process presupposes that in trying to write according to a particular set of conditions, individuals do not typically achieve a perfect draft on the first try: we make errors when we write, or do not meet the standard of writing we are attempting to achieve, and we learn partly through addressing those errors or inadequacies. Part of the writing process is discovering shortcomings in content, organization, audience orientation, and grammar and working to understand how one’s writing can be improved by negotiating those issues, hence the importance of revision. Error management training is a strategy that frames error-making as a natural part of the learning process (Keith & Frese, 2008). Though instructors may recognize how error correction feedback does not encourage students to think about how they can better develop the ability to address global issues in their writing, many instructors still resort to giving brief, critical feedback (Ferris, 2014). A focus on trying to avoid shortcomings can negatively impact a learners’ self-efficacy (Carter & Beier, 2010). However, a study on 173 adults between the ages of 20 and 66 found that low structure error management training can be beneficial for self-efficacy and performance (Carter & Beier, 2010). Error management training is meant to decrease the impact of negative
emotions on one’s metacognitive process, allowing individuals to consider the causes of errors (Keith & Frese, 2008). This strategy is well-suited as an approach for instructing students in how to improve their revision process as students must work through flaws and inadequacies throughout their writing process to arrive at final draft that meets a certain standard. Though it has not been researched in the context of a college writing course, this perspective has potential as a way of helping developing writing students learn how to manage issues in writing related to grammar, content, and organization as part of their writing process.

**Feedback and Revision**

Though most studies on writing skill use a course grade or an essay grade to assess a student’s ability to write, the way a student approaches revision is what determines his or her level of skill as a writer. An influential study on revision was conducted by Faigley and Witte (1981), in which they describe a revision taxonomy for measuring revision skill, defining successful revision as “the degree to which revision changes bring a text closer to fitting the demands of the situation” (p. 411). Inexperienced or novice writers tend to lack an awareness of audience and context while an expert writer can undertake “deep conceptual revisions as well as surface revisions to a text to try to make certain that readers see matters the way the author does” (Kellogg, 2008, p. 9). This level of expertise is typically found in professional writers who are able to anticipate audience expectations; however, Faigley and Witte (1981) explain that based on their observations of the revision strategies of writers across different levels, some expert writers (professional writers) are able to revise mentally before committing text to paper, much as skilled mathematicians can work out complex math problems in their heads and arrive at the correct answer without working
all parts of a problem out. Alternatively, developing writers are unlikely to have mastered the process of internal revision, and feedback is meant to serve as guidance for audience expectations.

One study illustrated how diagnostic and prescriptive comments can be helpful feedback and lead to improved revision skills. Carifio, Jackson, and Lorrain (2001) studied twenty-eight first and second year students taking an introductory literature course at a public community college in the Northeast. Students were given modified personal essays from a college writing textbook. They revised pretest and posttest essays and evaluated three treatment essays. None of the essays contained errors in grammar/mechanics. The essays given to the experimental group had specifically marked flaws with a separate key on what the mistakes were and suggestions on how to fix them while the control group had the same essays with only a summary of the problems, specifying that no errors were in grammar/mechanics and instructing the students to revise with no suggestions for how to go about doing so. The researchers evaluated the revisions based on a system of Effective Change variables based on the Faigley-Witte system with the added categories of Development Change, Coherence Change, and Organization Change (Carifio, Jackson, & Dagostino, 2001). The researchers discovered that diagnostic and prescriptive feedback can be helpful as students in both groups improved in positive revisions: they made needed changes and had fewer negative revisions, correcting areas that were not flawed or making a change that did not fix the problem from the pretest to the posttest; the experimental group became more proficient at improving flawed sentences. However, the study cannot carry over to students’ ability to effectively revise their own writing and cannot predict
how long the ability to revise may last beyond the intensive practice sessions that were part of this study (Carifio, Jackson, & Dagostino, 2001).

**Peer Feedback and Revision**

By engaging in dialogue with peers, students may be better able to understand the feedback, and peers can relate to each other’s difficulties. Cho and MacArthur (2010) note that peers communicate by sharing the same language or way of speaking, meaning that they may more effectively understand comments from each other than comments that include professional or academic jargon with which they are unfamiliar. In a study of 28 undergraduate psychology students in a twelve-week research methods course, in which the researchers examined feedback and student revision, Cho and MacArthur (2010) found that students were actually better at incorporating multiple peer comments into their revisions than comments from a single expert. A subject matter expert with experience in the content of the course and in teaching the course was used to provide feedback to students but was not actually teaching the course being studied; therefore, the researchers could control for possible extraneous influences. Students were randomly assigned to one of three experimental conditions. Students in one group received feedback only from the subject matter expert, students in another group received feedback from one of their peers, and students in another group received feedback from six peers. All students wrote a draft and reviewed peers’ drafts. Students’ drafts were all reviewed by multiple peers and the subject matter expert, but they only received reviews based on their experimental condition. To control for writing skill, students took a multiple choice writing skill test prior to completing the writing assignment for the study. Students wrote a draft corresponding to a writing assignment in that course and reviewed the drafts of others in SWoRD, an online tool for managing
drafts and reviews. They were unaware that a subject matter expert would be giving feedback and were even told they would not receive feedback from the course instructor. Reviews were done anonymously and students were instructed to create pseudonyms when they registered for the SWoRD system. As part of the reviewing process, students rated the draft being reviewed according to a rubric and were supposed to provide a comment for each area of the rubric. Feedback was characterized as directive, which involves suggestions for specific changes; nondirective, which observes a general area needing improvement; praise comments; criticism comments, which make a negative observation about one’s writing; summary; and off-task comments. To assess revision, Cho and MacArthur (2010) used a coding system based on the Faigley-Witte Revision Taxonomy. Through a follow-up ANOVA, analysis of revision types in each group revealed that students who received feedback from multiple peers made more complex repair revisions than those in other groups. A multivariate regression analysis on feedback types and revision type showed that non-directive feedback was predictive of complex repair revisions and new content revisions. Also, a multiple regression analysis on the revision types and writing improvement indicated that complex repair revisions positively predict final draft writing quality (Cho & MacArthur, 2010). Directive feedback was associated with surface changes, and non-directive comments were associated with complex repair revisions. Though they found that students receiving feedback from multiple peers receive non-directive comments which led to complex repair revisions, some limitations lie in having blind reviews since, in many peer review activities, students know their reviewers and vice-versa. Also, results might not generalize to other disciplines.
Yang (2011) developed a reciprocal peer review system that encouraged students to participate in modeling, coaching, scaffolding, articulation, reflection, and exploration as part of their peer review process. In the system, they can collect their favorite peer’s essays, which they want to serve as models for their own writing. For coaching, as students review peers’ essays, they have access to definitions and examples of surface errors (like run-ons, fragments, spelling, etc.) that they can refer to as they offer reviews to peers and as they look at their own reviewed writing. Similar to coaching, scaffolding gives students access to definitions and examples, but these are for error types found under global revision (coherence, organization, etc.). For articulation, peers provide comments to accompany identified error types, and those receiving the feedback can evaluate the helpfulness of the feedback and respond. Yang (2011) explains, “Through articulation, students externalise their knowledge and thinking process in making text revisions” (p. 690). As peers are actually revising others’ texts in the system, for reflection, there is a tool in the system that allows students to compare their originally submitted draft with the revisions of that draft provided by peers. A track changes feature allows students to see specific changes. To implement exploration, students are expected to revise drafts based on peers’ feedback. For the study, Yang (2011) collected data from 95 students at a science and technology university in Taiwan taking a third term English as Foreign Language writing class who had also passed the intermediate level of a nationwide English proficiency test. Using content analysis for analyzing students’ first drafts, final drafts, and reflective journals and scoring students’ first and final drafts, Yang (2011) found that the system effectively supported students’ peer review and revision processes.
In a three-year study on peer review and revision in junior-level sociology courses, Baker (2016) studied 91 students’ drafts, peer review forms, and revised term papers to determine whether peer review could improve students’ writing process. Students submitted drafts (complete or incomplete) the day before peer review was to take place in class. Students received blinded drafts, a rubric for evaluating drafts, and an instruction packet. Prior to peer review on the same class day, the instructor gave a lesson on how to give formative feedback. During peer review, students had to select statements from categories on the rubric that corresponded with the expectations of the writing assignment, and they had to also provide detailed formative comments on their own for each section. They were told only the peer review form with the rubric would be returned to the original author, so any comments on the actual draft would not be seen. Final drafts were due three and a half weeks after students received completed peer review forms. Baker (2016) analyzed peer review comments and revisions using content analysis and a version of the Faigley-Witte revision taxonomy was used to differentiate between surface-level and meaning-level revision changes. The majority of student comments involved meaning-level changes, and most students made meaning-level changes in their drafts as opposed to surface-level changes. However, meaning-level changes primarily involved adding text to the end of an essay rather than making meaning-level changes to text that was reviewed. Baker (2016) notes that a significant limitation lies in not comparing peer review comments to revision choices, and it is possible that some students already knew what they needed to change, particularly in cases where incomplete drafts were submitted for peer review. A limitation not mentioned was there was no comparison between students who revised without peer
review or who revised with limited guidance from the instructor to show the difference in revisions.

Overall, though studies show how both expert and peer feedback can impact revision, not all studies show a change or improvement from rough to final draft when peer review is compared to no peer review. In a study comparing students in a peer review condition with those in a self-review condition and no review, Covill (2010) found no significant difference in the final drafts. The researcher examined 61 students taking sections of a sophomore level psychology class. Each section was put into a different review condition, and all students regardless of their group was provided with instructor feedback on the rough draft for all three required literature reviews before submitting their final drafts. While there was no significant difference in the final drafts, following a MANOVA data analysis and Tukey's Honestly Significant Difference, Covill (2010) found that more formal revisions were made by students in the no review condition than in the other two conditions. Specifically, students made more global revisions. While Covill's (2010) findings are unexpected, it is important to note that all students received a lesson in making reader-based prose, and students in the no review condition still did receive feedback from the instructor on rough drafts.

**Student Perceptions of Peer Review**

In professional writing contexts, peer review is an accepted practice for providing feedback which is then used to revise. Writing groups are typically considered to be a tool for “professional” writers, be they creative writers or doctoral students working on dissertations. These individuals seek out feedback from peers in order to improve their writing skills. In Ching’s article on the historical emergence of peer review, she cites Anne Ruggles Gere’s book which examined the origin of peer review from outside of
school settings: “It envisions a period when response to writing occurred spontaneously and naturally, as it were, among status equals and outside the influence of a teacher whose authority could undermine the power of collaborative learning among autonomous peers” (Ching, 2007, p. 304). However, in some studies of student perceptions on peer review, students indicate a preference for expert feedback as opposed to feedback from peers, which seems to contradict previous findings on how peer feedback can influence self-efficacy and revision. Though much research has been done on the value of peer review to show that it is an important element of the writing process, student perceptions on its value vary. If students do not value peer review, then the impact feedback is meant to have on one’s self-efficacy and self-regulatory practices is not present, which could influence whether a person’s revision strategies improve.

According to Brammer and Rees’s study of 382 students at a private university who had completed their freshmen writing sequence and were in an intensive writing course, peer review was found to be “not very helpful” according to the aggregate average of all sections of the course (Brammer & Rees, 2007). The researchers note that surveys revealed many students surveyed indicated a lack of trust in their peers’ expertise, and one student even related her distrust in peers’ feedback to her own lack of self-efficacy in her writing ability: “I don’t think they can do it competently, just like I don’t think I can give a good Peer review b/c I am a horrible writer” (Brammer & Rees, 2007, p. 80). However, frequency of peer review related positively with perceived value, and perceived value was found to have a positive correlation with required in-class peer review. Brammer and Rees (2007) conclude that students who were instructed in how
to perform peer review and were required to participate in peer review more frequently found it to be a valuable practice.

Kasanga (2004) in her study of 52 students in academic writing at a University in South Africa determined that students primarily used teacher feedback over peer feedback, possibly due to the perception of the teacher as the one who awards final grades and due to negative feedback, which studies cited by Kasanga indicate may lead to a lack of trust between peers and reluctance to accept peers’ comments. However, despite these conclusions, students in the study reported a willingness to participate in peer review and satisfaction with the comments provided by peers (Kasanga, 2004).

Ludemann and Mcmakin’s (2014) study previously discussed in the section on Feedback and Writing Self-efficacy also reports students’ “lack of trust in peer writing ability” and a fear that using a peer’s feedback in a writing assignment might negatively impact the final grade for that assignment (p. 135). Despite these student concerns, Ludemann’s study of 37 first semester students in a New England public university psychology class also found that students believed that providing feedback (not receiving it) was helpful to improving their own writing. Interestingly, even when peer review isn’t utilized or trusted, students still indicate that it is helpful.

While some students indicate a preference for instructor feedback, Cho, Schunn, and Charney (2006) found that in a blind peer review study, there was no significant difference in the perceived helpfulness of peer comments versus expert comments. Cho, Schunn, and Charney (2006) studied 30 undergraduate students in research methods course. Students were told their reviewers might be the subject matter expert,
a single peer, or six peers. Students wrote a draft corresponding to a writing assignment in that course and reviewed the drafts of others in SWoRD, an online tool for managing drafts and reviews. Then, students rated the helpfulness of feedback using a scale of 1 to 5 with 1 being “not helpful at all.” In an examination of data from the small undergraduate course, Cho, Schunn, and Charney (2006) used a two-way mixed ANOVA to analyze the feedback helpfulness ratings and found no evidence that peer feedback was perceived to be less helpful than expert feedback.

In the same study, 88 undergraduate students in a psychology course for non-psychology majors participated in peer review in SWoRD as well, and Cho, Schunn, and Charney (2006) found that the type of feedback may impact perceived helpfulness. In the large undergraduate course, directive feedback and praise feedback positively influenced student perceptions while critical feedback seemed to negatively influence student perceptions on the helpfulness of feedback.

**Feedback Modality**

There has been some debate as to whether written feedback is the best modality for providing feedback, and some studies show that audio or audiovisual feedback is perceived to be more detailed and more personal than written feedback alone (Crook et al., 2012; Hung, 2016; Vincelette & Bostic, 2013). However, most studies on modalities other than written are small scale, and very few focus on peer feedback. Vincelette & Bostic (2013) studied 39 students and their 5 composition instructors on their use and perceptions of instructor feedback via screencast. The researchers found that students felt screencast feedback was more effective and that screencast feedback led them to made better revisions.
Crook and colleagues (2012) studied 287 students and 27 staff members on the use of video technology for providing feedback but found that most students preferred written feedback. Students and staff were surveyed on the possible benefits of video feedback before and after their use of a Web 2.0 resources called ASSET which serves as a video repository for students and staff. Though the majority of staff surveyed indicated a preference for giving video feedback, students preferred written feedback. This outcome could be a result of the video feedback not being individualized. Instead, generic videos were developed and students could choose the ones they needed to watch from a repository. Students cited the lack of individualized comments as a disadvantage to video feedback compared to written feedback (Crook et. al., 2012).

In a comparison of learner engagement with written peer-to-peer feedback and video feedback, Hung (2016) had 60 English as a Foreign Language (EFL) students in groups post video feedback on Facebook™ to members of their group. Facebook™ was chosen because students would receive updates when posts were made to their group and because groups could be made private. The researcher developed the Video-mediated oral feedback questionnaire (VOFQ) and offered a detailed description of how the questionnaire was developed, piloted, and modified to ensure reliability and content validity. Students also completed 300-500 word reflections, and fifteen students were randomly chosen to participate in semi-structured interviews. These videos were not screencasts but were video recordings of individual students talking into a video camera. Each student was required to create a three-minute video responding to specific questions related to class discussions, “video-mediated oral responses” (Hung, 2016, p. 93). Then, students had to view the videos posted by their group members and
create a two-minute video offering feedback identifying weaknesses and ways to improve to each group member on his or her initial three-minute video post, “video-mediated oral feedback” (Hung, 2016, p. 93). Hung (2016) found that students engaged in observation through modeling. One third of the students engaged in discussions with their peers about the feedback, and students engaged in cognitive strategies for achieving learning goals such as writing down comments after viewing a video to consider for further improvement. Learning gains, however, were not examined in this study.

Most problems identified with different modalities of feedback, video or screencast, parallel issues already acknowledged as challenges to students understanding and using written feedback, such as too much feedback causing cognitive overload, but some issues are related to technology use.

**Treatment: Collaborative Multimedia Peer Review**

The treatment for this study was based on the social cognitive model for sequential skill acquisition because the model accounts for self-efficacy beliefs, provides a scaffold for helping learners transition from needing social support to self-regulation, and has been used as a model for instruction to improve student revision, albeit revision focused solely on sentence combining (Zimmerman & Kitsantas, 2002). The four levels involved are observation, emulation, self-control, and self-regulation.

At the observation level, students observed a video modeling how to offer feedback during peer review, emphasizing the feedback types that have been correlated with global revision and how to revise (Cho & MacArthur, 2010).

At the emulation level, students enacted providing feedback to each other, which was also a form of practice in evaluating essays that should have helped them when
they actually revised. Students participated in peer review with VoiceThread™ instead of the discussion board or other text-based commenting tools as Raedts and colleagues (2007) found that students who observed video with peer models had better calibrated self-efficacy beliefs and outperformed those in a condition without video. Also, Jones, Georghiades, and Gunson (2012) examined student perceptions of peer tutor feedback via screen capture and found that all interviewed students commented on how knowing the individual tutor’s voice and vocal intonations enhanced the personalization of feedback.

For the next level, self-control, students composed a self-reflection since this level was when they were measuring their standard of how to evaluate their writing and make decisions for revision against what they saw in the videos and experienced in peer review.

During the self-regulation level, Zimmerman and Kitsantas (2002) explain that learners shift from observing and reflecting to performing, which requires self-regulation. At this level, students revised and submitted a final draft to demonstrate their competence at revising. They repeated this process for all four essays in the course.

Observation Level

The treatment included a video modeling how to provide feedback during peer review—emphasizing Cho (2006) and Cho and MacArthur’s (2010) nondirective and praise types of feedback while introducing other types with the exception of criticism—as well as how to question and consider the feedback one received from peers (Table 2-1). It also modeled a developing writer’s revision process as he/she moves closer toward becoming a skilled writer. Modeling is a type of observational learning, which
has been well-established as an effective instructional strategy for promoting self-efficacy (Bandura, 1991, 1997; Bruning & Kauffman, 2015; Raedts, Rijlaarsdam, van Waes & Daems, 2007; Schunk & Zimmerman, 1997; Wang & Wu, 2008; Zimmerman & Kitsantas, 2002).

The students used in the video were volunteers and not students in the freshman composition sections being studied. During the first minute and a half, the video explains the purpose of peer review which is to help a person become better at evaluating his or her own writing by practicing evaluating the writing of his or her peers. It also explains that global aspects of another’s writing, purpose, audience, organization, etc., are most important to evaluate. In the next thirty seconds, the types of feedback students should give without specifically labeling them as directive, non-directive, and praise are described. (The names of those who volunteered to be in the video have been changed.) In the ten minutes that follow, the video features “Hannah,” a student using VoiceThread™, an online multimedia discussion tool, in order to provide audio feedback on another student’s essay (Figure 2-3). The video captures Hannah as she logs in and as she accesses her group and the drafts posted. It also shows Hannah as she responds to feedback posted to her on VoiceThread™. The remainder of the video follows another student, “Sarah,” as she checks what comments or questions her group members have posted in reply to feedback that she provided. Sarah uses the option to post a video comment to further explain her initial feedback to Hannah. The video also shows Sarah as she considers feedback and begins revising her essay, highlighting how her revision approach can be improved (Figure 2-4).
Throughout the video, there are eight questions on concepts from the video that allow students to test their knowledge of proper peer review practice as they progress through the video. One of the questions is demonstrated in Figure 2-5.

Rather than the coping model used in Zimmerman and Kitsantas’s (2002) study, I utilized error management training, a method that emphasizes to the learner that making errors is an essential part of the learning process and frames errors or inadequacies as a form of positive feedback, in learning specific skills or in decision-making (Keith & Frese, 2008). In the instructional video, there are areas where making errors or not meeting the writing standard is shown to be a natural part of learning. Early in the video, students are told, “it is normal to make errors along the way,” referring to how peer reviewers are not expected to be experts in academic writing (Figure 2-6). This comes up again when one of the volunteers, Hannah, expresses concern that her feedback to Daryl may be confusing. Text in the video reiterates that making mistakes is part of the learning process, and Daryl can respond to Hannah’s comment requesting clarification if she is confused. The video encourages discussion between classmates to work out when someone has made an error in his or her writing or when a peer's feedback seems inaccurate. Also in the video, one of the student volunteers demonstrates her revision process. She starts by correcting grammar, which is shown to be a mistake since examining and changing content is more important initially. The video again indicates mistakes are normal.

Also, for outline assignments, students were permitted to revise and resubmit their outlines for a higher grade when they had errors in content. For example, the first outline assignment required students to prewrite and develop an outline on the essay
topic: illustrate the qualities of a purchaser of a specific product. Students whose outlines did not address the topic prompt were provided with feedback letting them know they did not address the prompt and encouraged to examine the lecture once more before resubmitting an outline for the instructor to review. Also, in video conferences or emails with students seeking additional feedback, the instructor’s comments emphasized the process of making changes or needing to improve areas as a part of learning. In response to one student’s email regarding her struggle to have a strong thesis as part of her outline, the instructor commented, “A working thesis may change multiple times before you find the statement that you think best expresses what your essay is about.” This comment indicated how one may make many “errors” in thesis development before hitting on the best possible option.

Since writing is a recursive process, and the point of revision is to improve upon one’s writing which assumes there are errors in a few or all areas of essay content, organization, audience, awareness, and grammar and mechanics, error management training was an appropriate strategy for modeling how to improve one’s revision process.

**Emulation Level**

Following the video, students emulated the performance modeled in the video by actually participating in peer review, which corresponds with the emulation level. Zimmerman and Kitsantas (2002) contend that social feedback is essential at this level since a connection has been shown to exist between social feedback, achievement, and motivation.

Students were placed into heterogeneous groups of three or four, and each student posted an essay draft on an assigned topic. VoiceThread™ is a tool that allows
users to create multimedia discussion threads by developing screencasts from uploaded files on which others can post text, voice, or video comments. There is also a drawing tool that allows one to highlight as he or she offers voice/video comments.

Each student created a VoiceThread™ offering feedback on other group members’ drafts by creating a screencast (utilizing either text, audio, or video) with group members’ document files and using the drawing tool to simultaneously highlight areas that were discussed in the screencast. Once group members received a VoiceThread™ with feedback, they were supposed to reply on that thread by clicking a button to create a text, voice, or video comment. The replies should have included an explanation for which suggestions from the screencast they intended to use, which they did not intend to use, and an explanation why. This stage allowed students to receive social feedback on how well their drafts and their comments to each other met the writing standards of the group and allowed them to engage in a dialogue. Reviewees’ comments on why they chose not to take a particular suggestion required a follow-up text, voice, or video comment from the reviewer justifying the original suggestion. Essentially, each student was required to contribute a total of six posts as dialogue with two other classmates about the feedback they received and the feedback they provided to other group members within VoiceThread™ as illustrated in Figure 2-7 below. Requiring students to develop thoughtful replies to feedback in VoiceThread™ emphasizes the interaction between students, which is essential for collaborative learning to occur (Zhao et al., 2014).
Self-control Level

At the self-control level, students began making decisions about what changes they would implement in their drafts based on the group’s standards. Zimmerman and Kitsantas (2002) describe this level as when learners “compare their creative effort with personal standards acquired previously from a model’s performance,” which in this case is the instructional video and classmates in their peer review groups (p. 661). Students were required to compose a self-reflection which prompted them to elaborate on their decision-making process about how or whether they used classmates’ feedback and how they adapted to the expectations of their group. They read “Reflective Writing and the Revision Process: What Were You Thinking,” a creative commons licensed chapter from Writing Spaces: Readings on Writing Volume I, which is an open source online book about writing directed at composition students. The chapter can be accessed at http://writingspaces.org/sites/default/files/giles--reflective-writing-and-the-revision-process.pdf. In the chapter, Giles (2010) introduces important points of reflection and a letter to the reader assignment in which students address the following:

- Tell the reader what you intend for the essay to do for its readers. Describe its purpose(s) and the effect(s) you want it to have on the readers. Say who you think the readers are.
- Describe your process of working on the essay. How did you narrow the assigned topic? What kind of planning did you do? What steps did you go through, what changes did you make along the way, what decisions did you face, and how did you make the decisions?
- How did comments from your peers, in peer workshop, help you? How did any class activities on style, editing, etc., help you?
- Remember to sign the letter. After you’ve drafted it, think about whether your letter and essay match up. Does the essay really do what your letter promises? If not, then use the draft of your letter as a revising tool to make a few more adjustments to your essay. Then, when the essay is polished and ready to hand in, polish the letter as well and hand them in together.
Giles (2010) also provides a model letter to the reader. Following this approach, students were instructed to include a letter to the reader on the last page of each essay final draft. Self-reflection is a key component of the learning process, particularly as it fosters students’ consideration of feedback and how or whether it will be used (Bandura, 1991; Duijnhouwer et al., 2012; Negretti, 2012).

**Self-regulation Level**

Zimmerman and Kitsantas (2002) explain that, during the self-regulation phase, learners shift from observing and reflecting to performing, which requires self-regulation. Learners shifted from practice with an understanding for what decisions skilled writers make during revision to actually using those skills. They should have made changes to their essay draft based on what they learned about revising from the instructional video, from their dialogues with classmates in VoiceThread™, and from their self-reflections. Following revision, they submitted a final draft to demonstrate their competence at revising. This four-step procedure shown in Table 2-2 was repeated for each of the four essays in this online composition course.

**Conceptual Framework**

The conceptual framework for this study is informed by social cognitive principles on the writing process (Flower, 1990; Flower & Hayes, 1981; Magnifico, 2010; Mitchell & Taylor, 1979; Zimmerman & Kitsantas, 2002) and empirical evidence that presents various peer review practices that are relevant for teaching composition in an online environment.

Within college composition courses, peer review is viewed as an important form of collaborative learning for students developing their written communications skills because peer review allows students to share writing and feedback that is intended to
emulate feedback from an authentic audience. This practice is meant to teach students how to anticipate audience expectations as they revise their writing (Magnifico, 2010; Paulson et al., 2007).

Revision is viewed as a key feature of the writing process since it is a complex task that may include revisiting previous stages of the writing process (such as planning or organizing). Revision practices can also determine one’s writing skill with those who focus more on global issues, areas that impact meaning and coherence, being more skilled (Faigley & Witte, 1981; Kellogg, 2008). A quality of learners believed to impact their ability to self-regulate and tackle complex tasks like revision involves learners’ self-efficacy (Bandura, 1997; Zimmerman & Schunk, 2001).

The conceptual framework depicted in Figure 2-8 demonstrates two key problems of practice in composition courses’ use of peer review. One problem lies in the absence of a standard strategy or set of strategies for how to implement peer review that might have consistent results. Though peer review is a collaborative activity, there are many instances of peer review as a one-way interaction (Hauptle, 2006; Keeley, 2014). Another problem lies in a lack of research on how peer feedback impacts self-efficacy and revision specifically as it applies to college composition. Though peer review has been shown to be effective in some cases (Carifio; Jackson; & Dagostino, 2001; Cho, Schunn, & Charney, 2006; Patchan et al., 2013), in other studies, peer review is shown to be ineffective according to student or instructor perceptions (Bedore & O’Sullivan, 2011; Brammer & Rees, 2007; Cho, Schunn, & Wilson, 2006; Kasanga, 2004; Ludemann & Mcmakin, 2014), so it would seem that students may not have a clear understanding of how to provide feedback that promotes self-efficacy and revision.
The purpose of this study was to examine the relationship between three variables: peer review, self-efficacy, and revision. The treatment illustrated in Figure 2-8 depicts Collaborative Multimedia Peer Review, an approach based on the Social Cognitive Model of Sequential Skill Acquisition because the model is supported by research as promoting social learning, self-efficacy, and a learners’ ability to adapt his or her performance. The video developed for these students defined and emphasized the types of feedback research has shown to promote self-efficacy and revision focused on global issues. It also demonstrated how to provide feedback in different modalities in VoiceThread™, emphasized error management training instead of error avoidance, and modeled revision that values meaning-level changes over surface-level changes. In the current context, students would be adapting their performance in peer review to evaluate their own drafts as they revise.

The control for this study is also shown in Figure 2-8. These students participated in peer review activities predicated on one-way interactions. Students reviewed each others’ drafts in a small group, filled out a peer review worksheet on each draft reviewed, and posted the worksheets on a discussion forum for their other group members to collect. Unlike the treatment, students in this group did not review instructions or modeling on how to give feedback, interact in peer review, or revise beyond basic class instructions.

Ideally, this research would demonstrate whether instructional scaffolding for peer review based on the Social Cognitive Model of Sequential Skill Acquisition has a positive impact on students self-efficacy, revision practices, and perceptions of peer review and performance. To determine if there is an impact on student learning, the two
groups are compared, and the group using scaffolding is closely examined for correlations between variables.

Figure 2-1. Flower and Hayes’ Cognitive Process Model of the Composing Process

Figure 2-2. Mitchell & Taylor’s Audience Response Model for Writing
Table 2-1. Cho and MacArthur’s examples of feedback types and definitions

<table>
<thead>
<tr>
<th>Feedback type</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directive</td>
<td>Explicit suggestions for change applicable only to specific student’s writing</td>
<td>“The 3rd paragraph is a collection of 3 seemingly unrelated sources. However, they are all good references and could provide valuable contribution to your arguments. So try to present them in your favor, and build logical connection among these 3 references and between them and your story.”</td>
</tr>
<tr>
<td>Non-directive</td>
<td>General comment applicable to any paper</td>
<td>“Many sentences need to be read over and re-done to be made more clear.”</td>
</tr>
<tr>
<td>Praise</td>
<td>An encouraging comment</td>
<td>“This is an excellent point and a good way of using previous information to branch off and inquire about other issues relating to your topic.”</td>
</tr>
<tr>
<td>Summary</td>
<td>Restates main points</td>
<td>“The main point of this paper was that you expect a decreased frequency of scientific conversation involving prediction and explanation in a nonscientific setting (coffeehouse)”</td>
</tr>
</tbody>
</table>

Figure 2-3. Hannah using VoiceThread™ to post an audio comment and using the pen tool. (Photo courtesy of author)
Figure 2-4. Sarah revising her essay following consideration of her peers’ feedback in VoiceThread™. (Photo courtesy of author)

Figure 2-5. One of the questions embedded in the instructional video. (Photo courtesy of author)
Figure 2-6. Error management training within instructional video. (Photo courtesy of author)

Figure 2-7. Peer review interaction on VoiceThread™.
<table>
<thead>
<tr>
<th>Theory</th>
<th>Observation</th>
<th>Emulation</th>
<th>Self-control</th>
<th>Self-regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Learners develop a clear image of what skill they need to perform through observing a model (Zimmerman &amp; Kitsantas, 2002)</td>
<td>Learners emulate the model’s performance while receiving social feedback which influences their motivation and level of achievement (Zimmerman &amp; Kitsantas, 2002)</td>
<td>Learners compare their emulation to their “personal standards” which are based on the model’s performance (Zimmerman &amp; Kitsantas, 2002, p. 660)</td>
<td>Learners can “adapt their performance to changes in internal and external conditions,” and self-efficacy beliefs impact this stage. (Zimmerman &amp; Kitsantas, 2002, p. 660)</td>
</tr>
<tr>
<td>Practice</td>
<td>Students watch a video modeling how to provide feedback in peer review (important to self-efficacy) and modeling how to revise, focusing on error management training.</td>
<td>Students participate in peer review (giving and receiving feedback) in VoiceThread™, engaging in a dialogue with group members. They evaluate the writing of others.</td>
<td>Students write a self-reflection explaining their thought process for decisions about how to use feedback and justification for revision decisions they are making. They evaluate their own writing.</td>
<td>Students enact revision decisions, utilizing the strategies of skilled writers.</td>
</tr>
</tbody>
</table>
Figure 2-8. Conceptual Framework
CHAPTER 3
METHODOLOGY

Research Design

Informed by this study's conceptual framework, four research questions were addressed:

1. To what extent does Collaborative Multimedia Peer Review contribute to students’ writing self-efficacy in an online freshman composition course?

2. To what extent does Collaborative Multimedia Peer Review contribute to students’ revision process in an online freshman composition course?

3. What relationship, if any, exists between Collaborative Multimedia Peer Review, students’ writing self-efficacy, and students’ revision process in an online freshman composition course?

4. What are students’ perceptions of receiving and providing feedback using voice and video comments in VoiceThread™ and how do they relate to students’ self-efficacy and revisions strategies?

This study utilized a convergent mixed-methods research design with parallel quantitative and qualitative data collection and evaluation in order to determine whether and how CMPR contributes to writing self-efficacy, contributes to student revision choices, and what, if any, relationships exist between CMPR, writing self-efficacy, and revision in online college composition courses. Five sections of an online ENC 1101 course were used (n = 41) with two sections utilizing CMPR (n = 22) and the other three sections utilizing peer review worksheets traditionally used in this course (n = 19). A mixed-methods approach was employed “to bring together the differing strengths and nonoverlapping weaknesses of quantitative methods […] with those of qualitative methods” in examining instructor modeling, student self-efficacy, and student revision (Creswell, & Clark, 2007, p. 62).
Participants and Context

The site of this study was a large college (40,000+ students) in northeast Florida. A full-time instructor’s regular semester load is fifteen workload units, or five sections of a three-credit course, so five sections of online ENC 1101 College Composition were used. All five sections were taught by the same instructor, the primary investigator, from a premade shell in Blackboard™ Learning Management System developed by the college’s eLearning department. Participants were not randomly selected, but two sections were randomly assigned to use CMPR by flipping a coin, and the shell materials for peer review were edited to include the peer review scaffolding video and the peer review process modeled after the social cognitive model of sequential skill acquisition. The other three sections received pre-training and engaged in peer review with the worksheet that was already built into the premade course shell. Sections of ENC 1101 have an enrollment cap of 22 students; however, to be included, students anonymously indicated their consent, completed at least three of the four peer review assignments, and submitted a rough and final draft for the final essay module. Forty-one students met these criteria, 22 from sections using CMPR and 19 from the sections using peer review worksheets. The participants for this study fell into two of Creswell’s (2013) types of samples on his “Typology of Sampling Strategies in Qualitative Inquiry.” Though primarily chosen for convenience, the participants in this sample were also representative of typical freshman students at this institution.

Exploring Group Homogeneity Relative to Writing Skills

After November 2013 in Florida, students who graduate from a Florida public high school in 2007 or later are not required to take a college placement test to determine college-readiness for English. Therefore, to assess participants’ writing
ability, students in all four sections were given a diagnostic timed writing prompt prior to the first essay assignment. The diagnostic essays were evaluated with a departmental rubric, which was developed by the college’s writing faculty for evaluating institutional effectiveness essay assessments (Appendix B).

A selection of essays was scored by another experienced writing faculty member who was familiar with the rubric. McGraw and Wong (1996) explain that when measurements share both metric and variance, as is the case when comparing multiple judges’ ratings for the same set of targets, interrater reliability can be determined using the intraclass correlation coefficient (ICC). Shrout and Fleiss (1979) indicate there are three different study types, or cases, for determining interrater reliability with the ICC. Where two people are rating the same targets, as is the case here, the raters should be treated as fixed effects (Shrout & Fleiss, 1979). Interrater reliability was moderate at .643 (N=16). The average rubric scores determined by each rater were within one level of each other with one rater consistently scoring slightly higher. In regards to faculty reliability in scoring student writing with rubrics, Good (2012) found that even with training on using a specific rubric to assess focus, content, organization, style, and language conventions, faculty struggle to agree on style and organization.

**Treatment**

The online ENC 1101 course shell required four practice assignments, each of which was a paragraph meant to lead directly to composing an essay on the same topic. However, outlines have been shown to be beneficial to developing writers by lessening the potential cognitive load associated with complex writing tasks (Baaijen et al., 2014; Kellogg, 1988), so the course content in all shells was adjusted to include a well-developed essay outline as a practice assignment rather than a paragraph.
Major essay assignments included in the course shell were an example essay, a compare and contrast essay, a cause or effect essay, and a definition essay. While the definition essay was meant to be a means of incorporating other rhetorical strategies and was the only assignment requiring research, I decided to replace it with a rhetorical analysis essay because one of the course outcomes is analyzing a reading selection. The required textbook, *The Little Seagull Handbook*, provides a section on how to write a rhetorical analysis of an argument. A proctored, timed essay on a general topic was also a requirement of the course.

For the sections using CMPR, a module was developed that focused on how to participate in peer review. In the module, the instructional video was assigned as part of the class lecture. The lecture explained the types of feedback—emphasizing the use of directive comments, nondirective comments, and praise comments—requirements for giving and receiving feedback, and replying to peers’ comments. It also included a PDF handout students could view online or download, which provided instructions and screenshots showing how to log in to VoiceThread™, how to access peer review groups, and how to post comments. The module included a practice peer review assignment that required students to log into VoiceThread™, access the group already created for them by the instructor, and comment on a sample student essay. The practice assignment allowed students to become familiar with VoiceThread™ and troubleshoot any technical issues prior to participating in peer review with their classmates.

In subsequent modules, for each writing assignment students were required to submit an outline. This was graded and returned with instructor feedback indicating
whether students demonstrated an understanding of the writing task prior to the deadline for student rough drafts. Students submitted their rough drafts through an assignment link in Blackboard™. This was consistent with how they submitted other written work such as their outlines and their final essay drafts. I collected the rough drafts submitted by the deadline by downloading them, and then I uploaded each draft to VoiceThread™ in order to minimize potential technical difficulties that might inhibit students from uploading to VoiceThread™. To prevent students from expecting the instructor to identify all errors on their drafts, instructor feedback was not provided on rough drafts in VoiceThread™. As part of the rough draft assignment description, students were told the following:

Since this class is teaching you to evaluate your own writing effectively, I will not be automatically reviewing drafts, but I am happy to answer any specific questions you may have about your writing like, for instance, “I am having trouble with my thesis. Would you please review it and let me know if you think it accurately explains what my essay is about?” This is just an example, but any specific questions you may have about your writing, I am happy to answer. Just email me or see me during online or face-to-face office hours.

Despite these comments, I looked over drafts and notified students who seemed to have misunderstood the assignment that they needed to reread the assignment description and get in touch with me for further assistance.

Students who were in sections not using CMPR worked from the peer review worksheet and the instructions already provided in the premade course shell. However, they received pre-training on the purpose of peer review and how to use peers’ feedback. They also completed a practice peer review activity with a sample student essay. These students were similarly informed that the instructor would not be providing feedback on their rough drafts unless specific help was solicited. Here too, I contacted
students who seemed to have entirely misunderstood an assignment, encouraging them to reread the assignment description and to get in touch with me.

**Instruments**

The dependent variables in this study were writing self-efficacy, how individual students revise, and student perceptions on giving and receiving feedback.

**Writing self-efficacy**

Writing self-efficacy was measured using the Writing Self-Regulatory Efficacy Scale. The scale was developed and validated by Zimmerman and Bandura (1994) to determine college students’ (aged 17-20) perceived efficacy for steps in the writing process in regular and advanced college writing courses. The survey was given to all students before they began the first peer review assignment and after the fourth and final peer review exercise to determine whether any changes in students' self-efficacy may have occurred. The instructional video modeled how to provide feedback in peer review, which should have positively impacted self-efficacy, so it was assumed that students in that group who began with low self-efficacy scores would have higher scores following instruction and peer review. Zimmerman and Bandura (1994) reported the reliability of the Writing Self-Regulatory Efficacy Scale at $\alpha = .91$. The assessment included twenty-five questions that ask students for perceptions about their ability to engage in steps of the writing process (planning, organizing, and revising), their creative capability for writing, and their ability to self-regulate through the process (Zimmerman & Bandura, 1994).

**Revision**

To measure student revision, a version of the Faigley-Witte Revision Taxonomy was used. The original taxonomy was assessed for validity, and earlier versions with
additional categories were revised to improve reliability (Faigley & Witte, 1981). Cho and MacArthur (2010) identified four types of revision change condensed down from Faigley and Witte's (1981) taxonomy of 24 types of revision change. In my research design, Cho and MacArthur's (2010) version of the instrument was used. Cho and MacArthur (2010) verified the reliability of their coding scheme by selecting ten percent of student drafts in their study for coding by another coder. They determined Cohen's Kappa for coding agreement was acceptable at .83. To ensure reliability in using Cho and MacArthur's (2010) coding system, another writing faculty member coded a sample of student essay revisions, and interrater reliability was assessed using the intraclass correlation coefficient (ICC). Then, I coded all of the remaining revised essays. For students' fourth essay assignment, each sentence in the revised essay was compared to the peer review draft, and the frequency of changes was counted. Frequencies were evaluated quantitatively.

**Perceptions**

Many studies on peer review also examine student perceptions because perceptions influence student self-efficacy, interest, goal orientation, and, ultimately, their engagement with the task (Brammer & Rees, 2007; Cho, Schunn, & Charney, 2006; Kasanga, 2004). In order to determine students' perceptions on giving and receiving feedback and using VoiceThread™, a seven-point Likert-type Judgment of Learning item, common in metacognition literature, was used (Anderson & Thiede, 2008; Thiede & Anderson, 2003). To assess participants' perception of learning as a result of the peer review, the participants responded to the following question: “How well do you think you understood what revisions needed to be made based on your PEERS'
review of your writing? 1 (very poorly) to 7 (very well).” To assess participants’ perception of learning as a result of giving peer reviews, they answered the following question: “How well do you think you understood what revisions needed to be made to your own writing as a result of GIVING reviews to others? 1 (very poorly) to 7 (very well).” This was a two-item measure used upon completion of each revision. A seven-point Likert scale was used to determine the degree to which students felt VoiceThread™ was useful for facilitating peer review. Students were asked “How useful was VoiceThread™ for engaging in peer review with your classmates? 1 (not useful) to 7 (very useful).” Since VoiceThread™ allowed for different comment types, text, audio, video, students were asked which comment type they preferred to give. “What was your preferred method or combination of methods for giving feedback in VoiceThread™: text, audio, video? Briefly explain why.” A five-point Likert Prediction of Performance item was used to assess how well participants believe they performed on the revisions (e.g., Thomas, Antonenko, & Davis, 2016). Specifically, the participants responded to the following question: “What rubric score do you think you will receive for your revised essay?” They selected a score from 1 to 5 for each category of the same rubric that was used in their diagnostic with Level 5 being equivalent to an “A” in that area, Level 4 equivalent to a “B,” Level 3 a “C,” and so on. Results of Likert-scale questions were evaluated quantitatively while the open-ended question on student preferences for feedback modality in VoiceThread™ was examined through thematic analysis. Results were analyzed with other data.

Qualitative data were also collected from students’ peer review interactions. Validity was ensured through data triangulation with the scores from the Writing Self-
Regulatory Efficacy Scale and revision taxonomy. Also, discrepant information further enhances validity, and so a detailed description of the coding process and how quantitative and qualitative data were merged is provided.

Procedure

ENC 1101 online is a sixteen-week course. During the first week, students reviewed the syllabus and acknowledged that they had read and understood the course syllabus, which included assignment descriptions and how peer review was executed. The drop/add period ended after the first week. During week two, once drop/add ended, the faculty dropped students for nonattendance if they had not completed any of week 1’s introductory activities or contacted the instructor. For these reasons, the diagnostic essay was due during week 2 of the course and submitted as an essay quiz in Blackboard. The Writing Self-Regulatory Efficacy Scale survey was also due during week 2. The instructor’s video on providing feedback in peer review and revising was required viewing in week 3 for course sections randomly chosen for the treatment group. Students included in this study spent an average of 41 minutes in the lecture content where the video was embedded. Students participated in peer review for the first time during week 4; students in the treatment used VoiceThread™ and those in the control posted peer review worksheets to the discussion board in Blackboard. The peer review process was repeated for each of four essay assignments. Data were collected from peer review for the final essay, week 13, giving students ten weeks to practice giving and receiving feedback from peers and to practice revising. Also for the final essay, students’ rough and final drafts were collected from each group in order to assess their revision skills. Finally, students took the Writing Self-Regulatory Efficacy
Scale survey in week 15 of the course. The sequence of activities is illustrated in Table 3-1.

**Data Analysis**

**Diagnostic scores**

Diagnostic essays were assessed using the faculty-developed departmental rubric. Essays were scored from level 1 to 5 in content, organization, conventions, and language and audience. Level 5 is equivalent to demonstrating excellence or A grade-level skill in that area, level 4 is considered very good or equivalent to a B, level 3 indicates average skill and is equal to a C in that area, and so on. Another experienced writing faculty member familiar with the rubric scored a selection of essays to ensure interrater reliability. Interrater reliability was moderate at .643 (N=16). An independent t-test showed no significant difference in diagnostic scores between the students in sections using CMPR (M = 3.20, SD = .59) and students in sections using peer review worksheets (M = 3.04, SD = .80); t(39) = 7.60, p = .45.

**Research Question 1: To what extent does collaborative multimedia peer review contribute to students’ writing self-efficacy in an online freshman composition course?** Writing self-efficacy was measured using the Writing Self-Regulatory Efficacy Scale to determine students’ perceived efficacy for steps in the writing process (Zimmerman & Bandura, 1994). The Writing Self-Regulatory Efficacy Scale was given to students in all four sections before they began the first peer review assignment and after the fourth and final peer review exercise to determine whether any changes in students’ self-efficacy may have occurred. Because the instructional video modeled how to provide feedback that would positively impact self-efficacy, it was assumed that students in that group who began with low self-efficacy scores would
have higher scores following instruction and peer review. The posttest scores were compared through a between subjects ANCOVA with pretest scores as the covariate.

Qualitative data from student-developed screencasts were also analyzed to explore possible associations between instructor modeling, feedback, and self-efficacy. Student-developed VoiceThreads™ were coded using Cho, Schunn, & Charney’s (2006) six-category coding scheme to determine what type of feedback students gave each other: directive, which involves suggestions for specific changes; nondirective, which observes a general area needing improvement; praise comments; criticism comments, which make a negative observation about one’s writing; summary; and off-task comments.

Thematic analysis (Braun & Clark, 2006) was used to extract and analyze the themes from students’ follow-up dialogues in VoiceThreads™ because it is an effective method of finding and analyzing themes in qualitative data and can be used within different theoretical frameworks as it is not bound to a particular theory (Braun & Clarke, 2006). Six groups, each with three members, were analyzed, so eighteen VoiceThread™ conversations were collected. Ideally, each thread should have contained at least three interactions: the initial feedback post or posts, a reply from the person receiving feedback, and another response from the person who originally posted feedback. In some cases, the initial feedback was one post critiquing the entire essay, and in others, the initial feedback involved multiple posts critiquing the writing on each page separately or each paragraph separately. Replies from the person receiving the feedback should have included an explanation for which suggestions he or she intended to use and which he or she did not intend to use and why. None of the group
conversations developed beyond a reply from the person being reviewed. Of the thirty-six interactions that occurred over the six groups, fourteen included a response to each classmate who provided feedback. For three of the drafts, the student writer posted a single response for both reviewers: “I appreciate all your guys’ suggestions. Thank you for going over my review with me.” Eleven interactions included feedback but no replies, and for four drafts, one of the reviewers viewed the draft, but did not post feedback.


For phase 1, I familiarized myself with the data first by transcribing the VoiceThreads™ and also by printing out comments and reviewing them for accuracy while rereading or listening again to the VoiceThreads.™ Braun and Clarke (2006) indicate that transcribing data facilitates a thorough understanding of the data. As my examination of qualitative data is based on theory related to feedback, self-efficacy, and revision, my coding was more theory-driven than data driven, so for phase 2, I manually generated initial codes looking specifically for patterns in feedback characteristics.

In phase 3, Braun and Clarke (2006) explain that the researcher should “start thinking about the relationship between codes, between themes, and between different levels of themes (e.g., main overarching themes and sub-themes within them)” (p. 20). As part of this process, I transferred my initial codes onto the files, created a table with the name of each code and a brief description, and began to tentatively designate themes (Braun & Clarke, 2006).
Braun and Clarke (2006) explain how phase 4 should involve reviewing extracts for each theme and determining whether there may be a pattern. Once a discernable pattern emerged, I reread my data to determine if the themes fit. According to Braun and Clarke (2006), at the end of phase 4, the different themes would be evident. At that point, I also had an idea of how they interacted as well as having “the overall story they tell about the data” (p. 21). As part of this process, I imported my transcribed data into NVivo 11. Saldana (2012) discusses how first-time coders should code manually but that most researchers utilize Computer Assisted Qualitative Data Analysis Software, of which NVivo 11 was an option. “CAQDAS, unlike the human mind, can maintain and permit you to organize evolving and potentially complex coding systems into such formats as hierarchies and networks for ‘at a glance’ user reference” (Saldana, 2012, p. 24)

During phase 5, I organized my data extracts by theme, and in doing so, I was able to define each theme and refine the themes further to determine what, if any, sub-themes existed, how each theme related to the other themes that emerged, and how they contributed to the overall “story” evolving out of the data (Braun & Clarke, 2006).

Once I determined how the themes related to each other and the overall story told through the data, I began phase 6, which involved writing a rich description of what the data reveal within and across themes in a concise and logical manner. Braun and Clarke (2006) also point out that, at this stage, the narrative being developed should do more than describe the data; it should make an argument as well.

Research Question 2: To what extent does collaborative multimedia peer review contribute to students’ revision process in an online freshman
composition course? Student revisions were analyzed from the fourth essay assignment. Each student’s revision choices were classified using a version of the Faigley-Witte Revision Taxonomy. For the revisions of the fourth essay assignment, each sentence in the revised draft was compared to the peer review draft and identified as either No Change, Surface Change, Micro-level Change, or Macro-level Change (Cho & MacArthur, 2010; Faigley & Witte, 1981).

The Compare Documents tool in Microsoft Word was used to show the tracked changes from rough to final draft. These files were printed along with the original rough drafts allowing the primary investigator to more easily examine differences since, for essays where a lot of content was altered, it could be difficult to follow the tracked changes in the margins of a document. To determine interrater reliability, a random selection of ten rough and final drafts were reviewed by another experienced English faculty member. Preceding the rating session, we met for three hours to review Cho and MacArthur’s (2010) and Faigley and Witte’s (1981) descriptions of change types and examples of error types. Two rating sessions each lasting two hours followed. As we marked changes directly onto duplicate copies of drafts, we compared our ratings for every other document. During training, we agreed on how to count each change type. Where Cho and MacArthur (2010) counted every word in a change, like where a sentence or sentences were deleted and/or replaced, we decided to count the number of sentences instead of words in instances where changes had been made as was the method in Faigley and Witte’s (1981) research. We agreed counting the words might overrepresent meaning-level changes since meaning-changing revisions could include multiple sentences with several words when the writer may have only altered or added a
few thoughts. In the excerpt provided in Figure 3-1, a student made two surface changes and two macro-level changes, adding new points. Changing “benefit” to “benefits” is one surface change, and as a result of altering the noun number, the student changed the verb “was” to “were” in order to maintain subject verb agreement. These changes were counted as two surface changes. In addition, the student created new content by adding the last two sentences in the paragraph which bring up points that did not previously exist in the essay. (This differs from extending content, a micro-level change, in that extended content adds to a point that already existed.) The addition of two sentences with new points is counted as two macro-level changes, one for each sentence, instead of as sixty-four macro-level changes for the number of words added.

Interrater reliability was assessed using the intra-class correlation coefficient (ICC). Of the three different cases which Shrout and Fleiss (1979) indicate can be utilized to determine the ICC, the two-way mixed model with the absolute agreement type was used here since the two raters were fixed and the rate of exact agreement was being examined, N=10. The ICC was found for each change type with all types showing high reliability (Table 3-2). For Surface changes, the rate of reliability was high with an average measure ICC of .982. As Cho and MacArthur (2010) divided Micro-level changes into two categories (complex repair and extended content) and Macro-level changes into two categories (new points and organization), the ICC was found for each subcategory. The average measure ICC for complex repairs indicated a high rate of reliability at .985, and for extended content, the average measure ICC was .988. Where new points were identified, the average measure ICC was .997, and the average
measure ICC for organization was .959. Finally, the reliability between raters for indicating when no change had been made to sentences was calculated, and the average measure ICC was .988. Table 3-2 reports the ICC and the confidence intervals for each category as well as p values.

Results were evaluated quantitatively looking primarily for instances of micro-level and macro-level change as indications that the students are becoming more skilled at revision. The revision analysis categories are provided in Table 3-3. Faigley and Witte's (1981) results for the percentage of surface and meaning-level changes were used to rank each student as being either inexperienced (1), advanced (2), or expert (3). These ranks do not denote that individuals are actually expert writers, advanced writers, or inexperienced writers overall; they are being used here to indicate student revision practices based on previous findings for revision practices. Because the dependent variable was ordinal and not continuous, a nonparametric test, the Mann-Whitney U-test, was used.

Research Question 3: What relationship, if any, exists between Collaborative Multimedia Peer Review, students’ writing self-efficacy, and students’ revision process in an online freshman composition course?

Quantitative and qualitative data already collected from the CMPR group were converged and analyzed (n = 22). Quantitative data on self-efficacy and revision were analyzed with correlation analysis. Quantitative results were compared with qualitative data from peer review for a triangulated view of how the variables, self-efficacy and revision, interact with CMPR (Creswell, 2014).
Research Question 4: What are students’ perceptions of receiving and providing feedback using voice and video comments in VoiceThread™ and how do they relate to students’ self-efficacy and revisions strategies? Participant responses to the Judgment of Learning survey, usefulness of VoiceThread™, and students’ Perception of Performance rubric score were examined using descriptive statistics and a series of Spearman Rho correlation analyses. Spearman Rho was appropriate because the data being compared was ordinal. Thematic analysis was used to analyze responses to the open-ended question on student preferences for feedback modality in VoiceThread™.

Table 3-4 demonstrates the alignment of the research questions, data sources, and analysis.

Limitations and Ethical Considerations

According to Creswell (2013), a study of one’s own organization, place of work, or oneself may raise issues of power and risk to the researcher, the participants, and the site. However, my knowledge of my institution, my experiences in teaching college composition and familiarity with the students and the challenges to teaching composition situate my personal, professional practice as an appropriate topic for my research. In order to prevent ethical concerns related to issues of power, I made it clear to students that grades were not dependent on students granting permission to be subjects in the study. Everyone was required to participate in peer review as part of the course, and students’ grades for peer review were only impacted by their participation in the course, not the study.
A significant limitation arose from the number of students who persisted in the course and agreed to participate. Ideally, at least 80 students across sections would have consented and persisted in completing the course. However, retention in my past online freshman composition courses has ranged from 60% of the students enrolled finishing and passing to as low as 45% of the students enrolled finishing and passing. Retention was similarly poor for the courses in this study. This led to the sample size being much lower than 80 students, which impacts how representative the sample is of the population.

The retention and success rate in the sections using peer review worksheets was notable lower than sections using CMPR; however, the workload in all sections was equivalent with the only difference apparent in instruction for peer review and peer review activities with students using CMPR having the added challenge of using a new technology outside of the course learning management system. Though the causes for students' failure can be difficult to determine, when students withdraw, they are required to provide a reason that is automatically sent to the instructor and dean. The withdrawal alerts for students in both groups were similar. Regardless of the group they were in, students who withdrew indicated that challenges to persisting in the course were external, involving an inability to manage school and work or school and family or a preference for face-to-face instruction. One of the students in a CMPR section who had initially consented to participate in the study stated as a reason for withdrawal, “My work hours are conflicting with my schooling, I can’t keep up with when things are due.” Similarly, a student in the group using peer review worksheets wrote as a reason for withdrawing, “Do not have the time to take classes right now. Have a lot more on my
plate than I expected.” While more students withdrew from sections using peer review worksheets, their explanations for withdrawing were essentially the same as the reasons given by students who withdrew from CMPR sections. Due to the similarities in reasons given for withdrawal by students in both groups, it is evident that the reasons students did not persist were not a result of differences in peer review activities.

Also, there were students who remained in the class who did not participate in peer review often enough to be included in the study. Though peer review was a required assignment associated with points, students may have had life issues that prevented them from engaging in all of the peer review exercises, or they may not have been motivated to complete the peer review discussions.

Also, as illustrated by Zimmerman and Kitsantas (2002), sometimes learners overestimate their ability to perform a task which can elevate their self-efficacy. After observing a model, Zimmerman and Kitsantas (2002) found that some learners’ self-efficacy decreased as they realized they had underestimated the difficulty of a task. If students overestimate their ability to perform revision tasks, it could impact the differences in pre and posttest self-efficacy scores in this study.

Interrater reliability might be a limitation as well if raters are biased or disagree on definitions or performance criteria. However, twice a semester, faculty meet to score common writing assessments for developmental English courses, and yearly, faculty meet to assess a selection of 1101 essays with the departmental rubric (Appendix A) for institutional effectiveness. In both of these instances, definitions are discussed and norming occurs with sample essays prior to scoring. The raters involved in both of these
processes typically agree on performance outcomes and interpretations of the scoring rubrics used.

Technical issues and differences in student access to personal computers that are up-to-date and meet software requires may pose a barrier to some. Hung (2016) identified technical challenges in a study on using multimodal technology for feedback such as poor video quality, poor sound quality, slow internet connection, and a lack of the proper equipment. Similar issues may have posed a challenge for some students in this study.

There is also the possibility that confounding variables, like feedback from other sources, could have impacted the outcomes of this study. Multiple students specifically asked me for additional help outside of the feedback that everyone received on final drafts. Some received support via email, some spoke to me over the phone, and some met with me through video conferencing. Also, local students, regardless of whether they are taking courses online, have access to writing tutors at each campus location, and all students have access to Smarthinking™, an online tutoring service that allows students to submit essays for review or to schedule synchronous online tutoring sessions. I made students aware of all of these resources because it would have been unethical not to disclose the services available to support them. Students I actually spoke to over the phone or through video conferencing indicated that they used tutoring at least twice.

Table 3-1. Timeline for implementation

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 2</td>
<td>Students complete Diagnostic essay quiz and Writing Self-Regulatory Efficacy Scale survey</td>
</tr>
<tr>
<td>Week 3</td>
<td>Students view instructor video on providing feedback in peer review and revising</td>
</tr>
</tbody>
</table>
Table 3-1. Continued

<table>
<thead>
<tr>
<th>Week</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 4</td>
<td>Students engage in peer review for essay 1 rough draft</td>
</tr>
<tr>
<td>Week 5</td>
<td>Students revise and submit essay 1 final draft with self-reflection and answer Judgment of Learning and Prediction of Performance questions</td>
</tr>
<tr>
<td>Week 6</td>
<td>Students encouraged to review instructor video on providing feedback in peer review and revising</td>
</tr>
<tr>
<td>Week 7</td>
<td>Students engage in peer review for essay 2 rough draft</td>
</tr>
<tr>
<td>Week 8</td>
<td>Students revise and submit essay 2 final draft with self-reflection and answer Judgment of Learning and Prediction of Performance questions</td>
</tr>
<tr>
<td>Week 9</td>
<td>Students encouraged to review instructor video on providing feedback in peer review and revising</td>
</tr>
<tr>
<td>Week 10</td>
<td>Students engage in peer review for essay 3 rough draft</td>
</tr>
<tr>
<td>Week 11</td>
<td>Students revise and submit essay 3 final draft with self-reflection and answer Judgment of Learning and Prediction of Performance questions</td>
</tr>
<tr>
<td>Week 12</td>
<td>Students encouraged to review instructor video on providing feedback in peer review and revising</td>
</tr>
<tr>
<td>Week 13</td>
<td>Students engage in peer review for essay 4 rough draft</td>
</tr>
<tr>
<td>Week 14</td>
<td>Students revise and submit essay 4 final draft with self-reflection and answer Judgment of Learning, usefulness of VoiceThread™, VoiceThread™ modality preference, and Prediction of Performance questions</td>
</tr>
<tr>
<td>Week 15</td>
<td>Students retake Writing Self-Regulatory Efficacy Scale survey</td>
</tr>
</tbody>
</table>

In the article, A Month Without Sugar, David Leonhardt has described a few ways to you can dismiss sugar from your daily life with some alternatives that could help the transition. He encourages this transition, but it seems the only benefits given were to possibly prevent Alzheimer’s and diabetes. So, will giving up sugar mean you will not have either of the two diseases? What other benefits does cutting out sugar have? Leonhardt mainly uses pathos throughout the article explaining regardless the form of sugar you get, it can still put your health in jeopardy. While Richards states in her article “The Bitter Truth About Sugar and Its Effects on Our Health”, the World Health Organization urges consumers to decrease their sugar intake to less than 5 percent of the total number of calories consumed daily.

Figure 3-1. Example of two surface and two macro-level revisions in student writing
Table 3-2. Interrater reliability with average measure Intraclass Correlation Coefficient for revision changes

<table>
<thead>
<tr>
<th>Change Type</th>
<th>ICC</th>
<th>Confidence Interval</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>.982</td>
<td>.857</td>
<td>.996</td>
</tr>
<tr>
<td>Micro-Level: Complex repair</td>
<td>.985</td>
<td>.940</td>
<td>.996</td>
</tr>
<tr>
<td>Micro-Level: Extended Content</td>
<td>.998</td>
<td>.953</td>
<td>.997</td>
</tr>
<tr>
<td>Macro-Level: New Points</td>
<td>.997</td>
<td>.990</td>
<td>.999</td>
</tr>
<tr>
<td>Macro-Level: Organization</td>
<td>.959</td>
<td>.833</td>
<td>.990</td>
</tr>
<tr>
<td>No Change</td>
<td>.988</td>
<td>.953</td>
<td>.997</td>
</tr>
</tbody>
</table>

Table 3-3. Revision analysis categories based on Cho and MacArthur’s revision taxonomy.

<table>
<thead>
<tr>
<th>Surface change</th>
<th>Changes such correcting spelling, tense, punctuation, abbreviation, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro-level change</td>
<td>Complex repair: At the sentence or paragraph level, fixing points by changing or deleting Extended content: Elaborating on a point by adding</td>
</tr>
<tr>
<td>Macro-level change</td>
<td>New points: Adding entirely new points or paragraphs, not just elaborating on an existing point Organization: Changing or deleting transitional elements</td>
</tr>
<tr>
<td>No change</td>
<td>No changes made to a sentence</td>
</tr>
</tbody>
</table>

Table 3-4. Alignment of research questions, data sources, and data analysis

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Data Source</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent does collaborative multimedia peer review contribute to students’ writing self-efficacy in an online freshman composition course?</td>
<td>Writing Self- Regulatory Efficacy Scale</td>
<td>Between subjects ANCOVA with pretest as the covariate to determine if there is a significant difference in posttest scores.</td>
</tr>
<tr>
<td></td>
<td>Student-developed voice threads and comments</td>
<td>Coding for themes related to self-efficacy in the feedback provided using Cho, Schunn, &amp; Charney's (2006) six category coding scheme, and using thematic analysis to find themes in follow-up comments.</td>
</tr>
<tr>
<td>Research Questions</td>
<td>Data Source</td>
<td>Data Analysis</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>To what extent does collaborative multimedia peer review contribute to students'</td>
<td>Revision codes based on Cho and MacArthur's (2010) revised version of Faigley-</td>
<td>Each change made from rough draft to final draft identified as either Surface change, Micro-level change, Macro-level change, or No change.</td>
</tr>
<tr>
<td>revision process in an online freshman composition course?</td>
<td>Witte (1981) Taxonomy</td>
<td></td>
</tr>
<tr>
<td>What relationship, if any, exists between collaborative multimedia peer review,</td>
<td>Writing Self-Regulatory Efficacy Scale, Revision Taxonomy Results</td>
<td>Paired samples t-test for pre/posttest results on the Writing Self-Regulatory Efficacy Scale in the treatment group, followed by Spearman Rho correlation analysis for self-efficacy and revision.</td>
</tr>
<tr>
<td>students' writing self-efficacy, and students' revision process in an online</td>
<td></td>
<td></td>
</tr>
<tr>
<td>freshman composition course?</td>
<td></td>
<td>Interpretation of correlation analysis and qualitative data</td>
</tr>
<tr>
<td>What are students’ perceptions of receiving and providing feedback using voice</td>
<td>Judgment of Learning survey, usefulness of VoiceThread™, VoiceThread™</td>
<td>Correlation results and qualitative analysis results aligned weighed equally</td>
</tr>
<tr>
<td>and video comments in VoiceThread™ and how do they relate to students’ self-</td>
<td>modality preference, Perception of Performance rubric score, Writing</td>
<td></td>
</tr>
<tr>
<td>efficacy and revisions strategies?</td>
<td>Self-Regulatory Efficacy Scale, Revision Taxonomy Results</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Descriptive statistics, correlation analyses using Spearman Rho combined with thematic analysis of comments in response to the modality preference question.</td>
</tr>
</tbody>
</table>
CHAPTER 4
FINDINGS

This study investigated whether Collaborative Multimedia Peer Review (CMPR) contributes to writing self-efficacy, contributes to student revision choices, and what, if any, relationships exist between CMPR, writing self-efficacy, and revision in online college composition courses. A convergent mixed-methods research design with parallel quantitative and qualitative data collection and evaluation was used. This chapter explores the findings as they relate to each of the four research questions.

1. To what extent does Collaborative Multimedia Peer Review contribute to students’ writing self-efficacy in an online freshman composition course?

2. To what extent does Collaborative Multimedia Peer Review contribute to students’ revision process in an online freshman composition course?

3. What relationship, if any, exists between Collaborative Multimedia Peer Review, students’ writing self-efficacy, and students’ revision process in an online freshman composition course?

4. What are students’ perceptions of receiving and providing feedback using voice and video comments in VoiceThread™ and how do they relate to students’ self-efficacy and revisions strategies?

Self-Efficacy

Quantitative Self-Efficacy Data

Writing self-efficacy was measured quantitatively using the 25 question Writing Self-Regulatory Efficacy Scale to determine students’ perceived efficacy for steps in the writing process (Zimmerman & Bandura, 1994). The reliability of the assessment is α = .91 as reported by Zimmerman and Bandura (1994). The questions ask for students’ perceptions about their ability to engage in steps of the writing process (planning, organizing, and revising), their creative capability for writing, and their ability to self-regulate through the process (Zimmerman & Bandura, 1994). The Writing Self-
Regulatory Efficacy Scale was given to students before they began the first peer review assignment and after the fourth and final peer review exercise to determine whether any changes in students’ self-efficacy may have occurred. (Twenty-two met the study criteria in sections using VoiceThread™ and nineteen in sections using worksheets.)

Survey scores from the beginning of the course (pretest) and survey scores taken at the end of the course (posttest) were analyzed with a between subjects ANCOVA using pretest scores as the covariate (N=41). Peer review type (CMPR and worksheet) was the between subjects factor. The covariate produced a statistically significant influence in this model, F(2, 38) = 8.75, p = .005, \( \eta^2_p = .19 \). The covariate accounted for 20% of the difference between groups. Observed and adjusted marginal means from the ANCOVA analysis are provided in Table 4-1. After the variance assessed with the pretest was removed from the model, the difference between groups’ posttest scores did not reach significance, F(2,38) = 1.87, p = .18, \( \eta^2_p = .05 \). Observed and adjusted means are provided in Table 4-1. A mixed ANOVA was run with peer review type (CMPR and worksheet) as the between subjects factor and time as the within subjects factor. There was no interaction between time and groups, but groups’ scores were significantly different, F(1, 39) =7.50, p = .009, \( \eta^2_p = .16 \). Table 4-2 provides descriptive statistics.

In order to more closely examine how groups scored on specific questions, paired samples t-tests were run for each measure of the scale for each group to determine whether there might be significant differences in writing confidence for specific questions within each group. For the sections using VoiceThread™, there was a significant increase in writing self-efficacy scores for questions 4, 5, 17, and 20. Table 4-
3 displays the significant results. For the sections using peer review worksheets, there was a significant increase in writing self-efficacy scores for questions 4, 5, 7, 16, 17, 18, and 22 as shown in Table 4-4.

Both groups made significant increases in questions 4, 5, and 17. Questions 4 and 5 relate to one’s ability “to realize the creative aspects of writing such as generating good topics, writing interesting introductions and overviews” while question 17 examines one’s ability to effectively plan as part of the writing process (Zimmerman & Bandura, 1994). Sections that used the peer review worksheets also demonstrated statistically significant increases in questions 7, 16, 18, and 22. Like questions 4 and 5, questions 7 and 18 involve recognition of one’s capability in the creative aspects of writing. Question 16 deals specifically with the perception of how well a person can self-regulate when there are competing activities and question 22 with one’s aptitude for revising the organization of a paper.

**Qualitative Data Self-Efficacy Data**

Qualitative data was also collected from peer review conversations in VoiceThread™. A codebook is provided with definitions (Appendix B). The data was analyzed both deductively, searching for specific codes based on previous research on feedback, and inductively using thematic analysis.

**Feedback types in CMPR**

Feedback on drafts for the fourth essay assignment was coded using Cho, Schunn, & Charney's (2006) six-category coding scheme, which includes directive feedback, nondirective feedback, criticism comments, summary, and off-task comments. Six groups, each with three members, were analyzed. The most frequent feedback types overall were directive feedback (explicit suggestions for specific
changes) and praise as shown on Table 4-5. According to Cho, Schunn, & Charney (2006), the directive and praise feedback types are ones perceived to be most helpful by students. Through their perceived helpfulness, these types of feedback should have had an impact on individuals’ writing self-efficacy; however, while directive comments and praise were the most frequent feedback types, the length and focus of directive comments varied greatly. For example, in VoiceThread™ peer review Group 1, each student provided multiple directive comments. Some comments emphasized superficial issues (grammar or mechanics) and some emphasized content-related writing issues. The following excerpts illustrate some of the variety in the depth and breadth of directive comments (underlined) from one of the stronger groups:

Group 1 Student 2 on Student 1’s Essay: Thank you for sharing your essay Student 1. I enjoyed reading it. I enjoyed your first page and agree with you on many points. The only thing on the first page that I noticed was some grammatical errors and a few punctuation errors that could be fixed to really make everything flow better, but that is all I could find on this page.

I noticed in the last two paragraphs you mentioned [sic] the cancer thing twice and it sounds a bit repetitive. I would maybe look at reworking those two paragraphs to include what you want to say but not repeat the thought.

I enjoyed reading your essay and think you did a terrific job. I noticed a spelling error on this page and the use of the word author a lot. I also didn’t see any quotations in regards to the second article you mentioned. I agree with a lot of what you wrote and think you wrote it very well.

In reviewing Student 1’s essay, Student 2 provides praise and directive feedback, and most directive comments are focused on correcting repetitive wording and grammar. The final comment recommends that the writer make sure to use statements
from a source per the assignment details. When reviewing Student 3’s essay, Student 2 makes a directive comment in regards to content while most statements provide praise:

Group 1 Student 2 on Student 3’s Essay: Good afternoon Student 3, Thank you for sharing. I found your essay well written, easy to read and it flowed nicely. I see that you used a lot of logos, but as a reader, I would like to see a little more of your view of how he uses pathos to relate to the reader. I like how much you included from the second article and found it extremely interesting as well. You really made some good points and have me going back and reviewing the article again.

Though Student 2 has provided less feedback on Student 3’s essay than Student 1’s essay, the latter feedback would be preferable as it focuses on content rather than surface errors. Similarly, in reviewing Student 2’s essay, Student 1’s directive feedback focuses on content and purpose rather than grammar or sentence structure. It also differs from Student 2’s comments in that Student 1’s feedback is not as specific, but as there are recommendations for content changes, Student 1’s comments still qualify as directive.

Group 1 Student 1 on Student 2’s Essay: I’m not to sure where your thesis statement is in your essay. You give great examples of ethos. I would try to find at least one more example of ethos, and as far as your pathos you have a great understanding on what pathos are but I feel that you could of used pathos in more detail. I picked the same article as I read the article I looked for words that triggered my emotions such as cancer obesity violate all these words have some type of emotional impact. I don't know if you wrote a second page but when I go to page number two it is blank. I was looking for your thoughts on how the author uses logos. Make sure you don’t forget about the second source. I picked a source that disagreed with Leonhardt opinions about stopping sugar. Good Luck

Student 3’s feedback below on Student 2’s essay seems to offer more critical statements than Student 1 or Student 2 provided, but Student 3’s feedback essentially focuses on one surface issue, that of Student 2’s use of first person point of view when the assignment instructed students to write in third person.
Group 1 Student 3 on Student 2’s Essay: If I’m not mistaken, I do believe that this supposed to be written in third person, and I see where you have indicated, “in my opinion, Leonhardt doesn’t have a strong ethos appeal when he doesn’t cite many facts or statistics,” so be careful or be mindful about that. I believe our essay was to be written in third person, so we can’t use our own personal opinions. So maybe consider rewording that so it’s not showing your own personal opinion.

Overall, Group 1 members provided useful feedback to each other in the form of directive and praise comments though most comments focused on surface issues. This was not the case with every group though the group interactions took place at the end of the term when I expected most students to have reached a higher level of competence at reviewing than what they demonstrated at the beginning of the term.

In Group 3, for example, each group member differed in the level of peer review demonstrated.

Group 3 Student 3 on Student 1’s Essay: Be careful for run on sentences, try to vary the length of your sentences so they don’t drag on... Good work, I love the details and information you have provided! In your last sentence I would suggest changing out “denier” with oppositionist maybe? I just had to re-read that sentence a few times, the wording was a little weird... [sic] Your essay was very strong!

Here, Group 3 Student 3 has offered a nondirective comment about run-on sentences, not clearly identifying an example or examples, and a directive comment about changing a word choice. Student 3 only comments on surface issues in her review of this essay. In Student 3’s review of Student 2’s essay, Student 3 provides directive comments related to the use of point of view and mentions a key aspect of how point of view impacts the purpose of Student 2’ essay.

I think you wrote a good essay, but noticed that you took a standpoint on the article. I think we were supposed to analyze how well the author explained their argument rather than taking a side. Refraining from using “I” and “you” was suggested, I think if you changed that part of your essay and leave your personal opinion on the topic out, your essay would better fit the guidelines. Good work though!
Unlike Student 3, Student 1 in Group 3 offered no constructive comments on Student 2’s essay but provided praise.

I really wanted to find something to help you with, but frankly I thought you did a good job with your paper. I thought it was easy to read and it flowed between subjects well.

Similarly, when reviewing Student 3’s essay in Group 3, again, Student 1 provides no constructive feedback:

Great job with your paper. I don’t see any glaring issues that need fixing, and your grammar seems fine to me. I didn’t cite the author of the essay I chose for my own topic and I like the way you did that at the end.

Group 3 Student 3 focuses on only offering praise to the two other group members though the instructional video created for CMPR states, “[…] only offering praise is not as helpful as praise with other types of feedback.” Also in Group 3, Student 2 did not contribute any feedback to the other members of the group though in a conversation with the instructor about her essay, she indicated that she did review the comments that were left for her. The interaction in Group 3 left Student 3 contributing the most constructive feedback, yet one of the other group members only offered praise and another made no comments at all.

In Group 6, the differences in length and substance of feedback comments were more prominent. Student 3 in this group provided detailed audio feedback on each paragraph of each group member’s essay. On Student 1’s essay, Student 3 left nine minutes and twelve seconds of feedback that included comments on the purpose of the essay and on how to connect specific persuasive appeals to what Student 1 discusses in his essay:

Group 6 Student 3 on Student 1’s Essay: […] just make sure you, [Highlights essay with pen tool] you remember what the purpose of the essay is which is to analyze rhetorical appeals instead of just kind of restating what the article
is talking about because that’s what it seems like the idea of this is. And so on the second paragraph, what I see is just that it looks like you’re kind of reiterating the idea of where he was getting at in his article, and you’re restating some of the facts and things he did, so my suggestion would just kind of be maybe talk about how this, in this paragraph, maybe how he uses logos, which is the use of like facts and information, or I think ethos is that, whichever one is meant, whichever one explains the use of facts and information is the appeal I think this essay, or this paragraph could be used for that. […]

In his review of Student 2’s essay, Student 3 left two minutes and twenty-four seconds of substantive, directive and praise audio feedback. Here, Student 3 focused on how Student 2 could more clearly explain her points and give examples to support her claims:

Group 6 Student 3 on Student 2's Essay: […] My suggestions, by the way I’m trying to stop using “uh” and “um” when I’m speaking, so if you just hear me pause, that’s why. But in this second paragraph as I’m looking at it, in the first sentence, you address the author in this one, which I think is good, but like I said, I just think if you’re going to address the author, you should start in the very beginning and then when you address him throughout the whole essay, they’ll know from the beginning that he’s the author of the article because I think, in the beginning of the article Meyers, that’s a good address, I don’t know how to say that, but that’s a good way of addressing it, but since you didn’t address that he was the author in this, I can make assumptions about who Meyer’s is, but I’d rather not if you’re going to cite who the author is, you know. And then in the second sentence, my suggestion again is just to possibly go over the things that he’s cited about the Earth’s ocean warming. What is the research going on in sentence three right here, but what is the research he used to convince his credibility and why do think he used that possibly? Like I said. These are just my suggestions. Feel free to use them if you like. […]

The quality of Group 6 Student 1’s comments differs greatly from those of Student 3. To group members, Student 1 provides brief praise and a nondirective comments about grammar:
Group 6 Student 1 on Student 2’s Essay: very informative, all paragraphs are well stated. I did see some small grammar [sic] issues but that was about it.

Group 6 Student 1 on Student 3’s Essay: opening paragraph is very detailed and to the point.

just a few minor grammar [sic] errors, but for some reason im [sic] not able to highlight or show them, otherwise [sic] then [sic] that good job and good closing paragraph.

Group 6 Student 2 also provided feedback that lacked substance though it was more specific than Student 1’s comments:

Group 6 Student 2 on Student 1’s Essay: in your first paragraph i [sic] would reread [sic] it i [sic] think that you meant no instead of on in your fourth [sic] paragraph i [sic] would maybe include a quote from the actual article.

i [sic] think your essay [sic] is good and the flow is ok i would just check your spelling [sic] and grammar.

Group 6 Student 2 on Student 3’s Essay: i [sic] like your beginning paragraph it is very clear and it explains what we are going to be reading about. i [sic] also think the flow of your essay is good

in your last paragraph the first sentence [sic] is a little confusing

i [sic] think your conclusion is very strong, i [sic] like how you stated your opinion and why clearly.

While Group 6 Student 3’s audio feedback demonstrates how he read and responded to each paragraph on his group members’ essays, the other two members of Group 6 do not seem to have invested an equal amount of time or effort. The frequency of feedback types is provided in Table 4-5.

While directive feedback varied in content, it is interesting to note that, of the 122 directive comments, twenty-four referenced specific assignment requirements. In some cases, students provided feedback that offered suggestions about meeting assignment content requirements. When Group 1 Student 3 commented, “I believe our essay was to be written in third person, so we can’t use our own personal opinions,” she was offering
directive feedback on content but also referencing a specific requirement of the essay assignment that Group 1 Student 2 had failed to meet. In a different group, Group 3, another student commented on a similar issue in a classmate’s writing, again referencing a specific assignment requirement: “Refraining from using ‘I’ and ‘you’ was suggested, I think if you changed that part of your essay and leave your personal opinion on the topic out, your essay would better fit the guidelines.” Some of the directive comments that alluded to the assignment requirements noted that classmates may have left out key content information. In Group 3, Student 2 explained, “I think we were supposed to analyze how well the author explained their argument rather than taking a side.” This feedback indicates that the student’s essay being reviewed fails to meet an essential content requirement for the essay assignment.

**Feedback types using the peer review worksheet**

Due to the absence of a significant difference in self-efficacy improvement on the Writing Self-Regulatory Efficacy Scale between the sections using CMPR and the sections using peer review worksheets, a selection of peer review worksheets was examined to determine whether there may have been similarities in feedback despite the peer review conditions being different. While the directions on the worksheet primarily instructed students to answer questions that essentially required them to repeat statements from classmates’ essays or summarize whether required elements were present, i.e. “What does the student writer state as the main argument of the article,” they were also instructed to pay attention to the worksheet directions which indicated they should have been making suggestions for improvement: “Try to maintain a helpful and constructive tone when making suggestions or pointing out areas that need further development.” Unlike the students using CMPR, students using peer
review worksheets did not have a lesson on the specific feedback types (direct, indirect, praise). Despite the lack of instruction on feedback types, multiple students utilized some directive and praise comments in their completion of the peer review worksheets. Figure 4-1 provides an example of how one student utilized directive comments (underlined) on one page of a worksheet response:

Also, students using peer review worksheets often provided praise comments despite not being instructed in that type of feedback (Figure 4-2). Though praise was not typically in the actual worksheet, it could be seen in discussion posts where completed worksheets were attached.

Like the feedback from the sections using CMPR, the feedback from students in sections required to use peer review worksheets varied. Some students completed the worksheet offering only basic answers to the worksheet questions with no directive comments, some provided one or two directive comments that focused on surface issues such as formatting or point of view, whereas others offered more comprehensive comments on content and organization.

**Self-efficacy in follow-up comments for CMPR**

A vital feature of CMPR with VoiceThread™ involved students contributing, in addition to feedback on drafts, an additional six posts as dialogue with two other classmates about the feedback they received and the feedback they provided to other group members within VoiceThread™. The rationale for this stage was to prompt the dialogue between writer and audience supported by theory as being important to the development of writing skills. However, most students did not offer substantial replies to classmates’ feedback, so interactive dialogue was not present in peer review groups.
Of the eighteen students in the six groups being examined, twelve posted responses to the feedback they received. Of those twelve, most only acknowledged classmates’ comments and expressed an intention to use them, which did not prompt further comments. One student, however, offered substantial replies to her group members explaining how feedback would or wouldn’t be used, and a student in another group responded with questions that went unanswered by the other members of his group.

The majority of replies expressed gratitude to other group members for their review and a succinct acceptance of the feedback. Expressing gratitude is a socio-emotional behavior that can lead to a sense of community in group work (Kwon, Liu, & Johnson, 2014), so such comments may have also impacted writing self-efficacy. Group 1 Student 1’s reply to Student 2’s feedback expressed thanks and summarized the suggestions offered indicating they would be used:

Group 1 Student 2 on Student 1’s Essay: Thank you for sharing your essay Student 1. I enjoyed reading it. I enjoyed your first page and agree with you on many points. The only thing on the first page that I noticed was some grammatical errors and a few punctuation errors that could be fixed to really make everything flow better, but that is all I could find on this page.

I noticed in the last two paragraphs you mentioned [sic] the cancer thing twice and it sounds a bit repetitive. I would maybe look at reworking those two paragraphs to include what you want to say but not repeat the thought.

I enjoyed reading your essay and think you did a terrific job. I noticed a spelling error on this page and the use of the word author a lot. I also didn’t see any quotations in regards to the second article you mentioned. I agree with a lot of what you wrote and think you wrote it very well.

Group 1 Student 1’s reply to Student 2’s feedback: Thank you Student 2 for your feedback [sic] I will be sure to read it over and fix the grammatical errors and punctuations before the final draft thank youn [sic].
Here, Group 1 Student 1 replied with thanks and an abrupt acknowledgement of feedback related to grammar and punctuation. Student 1 passed on the opportunity to request more information about how errors impacted the flow of the essay. The student could have requested the reviewer indicate a particular example of where this happened in the essay or asked for some feedback geared more towards the content and development of the essay; however, the nature of Student 1’s reply does not prompt further comment from Student 2.

Like Group 1 Student 1’s reply comment, most students’ replies to feedback didn’t question the suggestions or ask for further information, so such replies did not further a dialogue between group members as exemplified in exchanges in Group 3 and in Group 6 below:

Group 3 Student 3 on Student 1’s Essay: Be careful for run on sentences, try to vary the length of your sentences so they don’t drag on... Good work, I love the details and information you have provided!

In your last sentence I would suggest changing out “denier” with oppositionist maybe? I just had to re-read that sentence a few times, the wording was a little weird.. [sic] Your essay was very strong!

Group 3 Student 1’s reply to Student 3’s feedback: Student 2, Thank you for your feedback. I will change my wording where you mentioned it and re-read my paper to correct any run-on sentences or grammatical issues.

Group 6 Student 2 on Student 1’s Essay: in your first paragraph I would re read [sic] it I think that you meant no instead of on in your forth [sic] paragraph I would maybe include a quote from the actual article. I think your essay [sic] is good and the flow is ok I would just check your spelling and grammar.

Group 6 Student 1’s reply to Student 2’s feedback: okay thanks I see have a few things I need to make changes on.

In Groups 1 and 4, two students offered replies to feedback that should have generated further discussion. In Group 1, Student 3 politely disagreed with the
suggestions from both group members about her essay not addressing certain persuasive appeals. To both group members, Student 1 explained where she thought she had discussed the persuasive appeals being questioned, and Student 1 solicited both group members to follow up with her on whether her reply clarified that she had sufficiently addressed the persuasive appeals. The bold statements show where

Student 1 sought additional discussion:

Group 1 Student 3 reply to Student 1: Hi Student 1 Just wanted to thank you for reading the essay on A month without sugar and thank you for your observations. you did mention that you were looking to see where I had written about pathos in the essay. And I thought I captured that information I the 3rd or 4th paragraph where it states, “From the beginning of Leonhardt’s article where he lists all of the foods.” It’s in that section. “Leonhardt makes personal arguments for reducing or even eliminating sugar,” and he writes the article on Dec 30, which is right after the holidays, and “he makes a personal connection to the readers by noting many of them may have indulged in some tasty, sugary sweets.” And then he also goes in to understanding where they are as it relates to coming out of the holidays and “offers some practical advice for healthier food” should they try the 30 days without sugar, and he gives them Whole 30 information to use as an actual regiment or recommended popular food regiment. I thought I had captured that information, and if it’s not clear then let me know and I’ll definitely see if I can take another approach, but I thought I’d captured that information. Ok. Thank you so much for taking the time to read the essay

Group 1 Student 3 reply to Student 2: Hi Amanda. Thank you for reading my essay on “A Month without Sugar” by Dr. Leonhardt. I thank you for your comments, and you did point out that you didn’t see any pathos. I was mentioning the pathos section in the last paragraph before you get to the conclusion of my essay. And it is in the section where I mention that he writes the, or published the article in December right around or right after the holidays “makes a personal connection to the readers by noting many of them may have over indulged” over the holidays, so I believe I included pathos in my essay towards the end. I didn’t actually use the words pathos, ethos and...so hopefully if you have the opportunity, you can go back and see if I’ve done that very well. I apologize for my late response. I didn’t scroll to the last page on the cited page to see your response last night when I was taking a look and I just thought I would take a look today hoping to see your response, and there you were on that last page. That was an oversight on my end. However, I do appreciate you taking the time to respond
Despite Student 3’s explanation and request for additional comments from her group members, no further discussion followed her replies. In Group 4 also, a group member attempted to further the discussion with his group members.

Group 4 Student 3 reply to Student 1: Student 1, I appreciate your feedback. I know that it may be difficult to see where I was going with my thesis. I may rework that to see if I can make things more clear. Did you see any other errors or omissions? I just want to make sure that it made sense and that I was touching on all of the persuasive arguments.

Student 1, If you do see anything else, please let me know. Do you think that I did my in-text citation correctly?

Group 4 Student 3 reply to Student 2: Student 2, I appreciate your feedback. I will look over your suggestions and make some changes. I did agree with the author’s arguments. If you happen to see any other errors or anything that you think I should add, please let me know.

While Group 4 Student 3 does not question the feedback he received from his group members, he does request further review of his writing which was not forthcoming from the other members of his group.

Self-efficacy in worksheet sections’ peer review discussion replies

For students using peer review worksheets on group discussion boards in Blackboard, though replies to feedback were not required or explicitly encouraged, some students replied to their classmates’ feedback. Most often, replies expressed gratitude and/or succinctly acknowledged the feedback that was provided. For example, one student’s reply to feedback from a classmate in her peer review group was as follows: “Thank You [name deleted] I was rushing to submit this night so it’s a little over the place but thank you for your notes I will resumit [sic] it with the things I’m missing.”

While the similarity between groups in the types of feedback provided, use of replies, and expressions of gratitude may have contributed to the absence of a
significant difference between groups in writing self-efficacy improvement, quantitative analysis showed CMPR pretest scores on the Writing Self-Regulatory Efficacy Scale differed with the pretest scores of those using the peer review worksheet. Qualitative results indicate that students do not need to be taught specific feedback types in order to provide feedback that has been supported as promoting self-efficacy, but peer review condition may have impacted student writers’ self-efficacy in the CMPR sections.

**Self-reflection in feedback comments for CMPR**

While not frequent, an additional theme of interest that emerged from thematic analysis of feedback in the CMPR groups was self-reflection as part of feedback to classmates. Self-efficacy and reflection have been found to contribute to critical thinking and learning with self-reflection being important for metacognitive monitoring to occur (Isaacson & Fujita, 2006; Phan, 2014; Steiner, 2016; Zimmerman, 1998). For example, in Group 1 Student 2’s feedback on Student 3’s Essay, Student 2 notes how reviewing Student 3’s essay made her think again about what she saw in the required reading on which the essay was based: “You really made some good points and have me going back and reviewing the article again.” In Group 3 also, Student 1 provides only praise feedback, yet Student 1’s comments indicate self-reflection is occurring when Student 1 says, “I didn't cite the author of the essay I chose for my own topic and I like the way you did that at the end.”

**Revision Skill**

To determine the extent to which CMPR may have contributed to students’ revision process, rough and final drafts were collected and compared to identify the types of changes that occurred. Cho and MacArthur (2010) paired down Faigley and
Witte’s (1981) taxonomy of 24 types of revision change to four types of revision change: no change, surface change, micro-level change, or macro-level change.

Overall, the average number of surface changes made from all of the possible change types (excluding no change) for the students using CMPR was 47.7% while the average number of surface changes made for the students using peer review worksheets was 48.7%. The average for surface changes and meaning changes, which include all micro and macro-level changes, can be found on Table 4-6. According to Faigley and Witte’s (1981) analysis of the averages for change types between inexperienced, advanced, and expert reviewers, inexperienced writers made overwhelming more surface changes than meaning changes with meaning changes making up only 12% of all changes between drafts. In examining the averages for each peer review condition, both exceed the percentage of meaning level changes Faigley and Witte (1981) associated with inexperienced writers, but despite the differences in how peer review was executed, the groups’ averages are almost identical. However, a group average can be misleading, particularly in smaller sample sizes such as what I am working with. In order to better represent the revision skill of each student, Faigley and Witte’s (1981) results for the percentage of surface and meaning-level changes were used to identify each student as being either inexperienced (1), advanced (2), or expert (3). According to Faigley and Witte’s (1981) analysis of revision, individuals who had been identified as inexperienced writers prior to their research ended up having meaning-level changes that made up 12% of all changes between drafts, advanced students and experts (also labeled at the beginning of their research) had meaning-level changes making up 24% of changes and 34% of changes respectively. Students in the
present study whose meaning-level changes were less than 24% were identified as inexperienced, those whose meaning-level changes were between 24% and 33% were identified as advanced, and those who have 34% or more of meaning-level changes were labeled expert. For this study, categorizing a student according to these labels does not signify that they are actually expert writers, advanced writers, or inexperienced writers overall but instead to categorize student revision practices based on previous findings for revision practices. In cases where students made almost no changes, fewer than ten, from rough draft to final draft, their final essay score determined how they were categorized.

While the Mann-Whitney U Test indicates that the group using CMPR has students more skilled in revision than in the peer review worksheet group, there was no statistically significant difference between the two groups’ revision skills ($U = 200$, $df = 39$, $p = .765$). Based on the revision data, the two groups display equivalent skill at revising, in many cases making meaningful global changes to their writing regardless of the peer review condition.

**Collaborative Multimedia Peer Review, Self-Efficacy, and Revision**

In order to conclude whether a relationship exists between CMPR, students’ writing self-efficacy, and students’ revision process, data from students in the CMPR sections were examined. Students’ average scores on the writing self-efficacy scale from the beginning of the course and from the end of the course were analyzed with a paired samples t-test. Efficacy posttest scores were included in correlation analysis with student rankings based on the revision taxonomy results. Correlation analysis findings were combined with qualitative analysis of the peer review groups and evaluated.
The paired samples t-test showed a difference approaching significance between writing self-efficacy scale scores from the beginning of the course (M = .437, SD = .780) and the end of the course (M = .479, SD = 1.06); t (22) = 2.06, p = 0.051. Nonparametric correlation analysis was used to determine whether an association exists between differences in writing self-efficacy scale scores from the beginning and end of the semester and students’ revision skills. None of the correlation coefficients indicated a correlation, and none were significant: Kendall tau-b, \( \tau = -.054, p = .768 \) and Spearman rho, \( \rho = -.064, p = .776 \).

**Student Perceptions, Self-Efficacy, and Revision**

In order to examine how students’ perceptions of receiving and providing feedback using voice and video comments in VoiceThread™ may relate to students’ self-efficacy and revisions strategies, descriptive statistics for usefulness of VoiceThread™, prediction of performance and judgement of learning are examined; correlations between prediction of performance, writing self-efficacy, and revision skills are analyzed; and a thematic analysis of comments in response to the modality preference question is combined with the former data sources.

**Perceptions**

Student perceptions are examined in peer review studies because perceptions can influence student self-efficacy, interest, goal orientation, and, ultimately, student engagement with the task (Brammer & Rees, 2007; Cho, Schunn, & Charney, 2006; Kasanga, 2004). To assess how well participants in the CMPR group believe they performed on the revisions for the final essay assignment, the students completed a five-point Likert Prediction of Performance item (e.g., Thomas, Antonenko, & Davis,
Students were provided with the departmental rubric with the 5 performance levels and point distribution that was used to assess their diagnostic essay and were asked “What rubric score do you think you will receive for your revised essay?” For each category of the rubric (Content, Organization, Conventions, and Language/Audience) students indicated whether they expected their final essay to be at Level 5, 4, 3, 2, or 1 with Level 5 being equivalent to an “A” in that area, Level 4 equivalent to a “B,” Level 3 a “C,” and so on. The average difference between students’ predictions of performance using and actual performance was .68. Though three students overestimated their final essay score by one level or more, overall, students were fairly accurate in their predictions for how well they would perform on the final essay assignment as shown in Table 4-7.

In order to determine students’ perceptions on giving and receiving feedback and using VoiceThread™, a seven-point Likert Judgment of Learning item was used. To ascertain participants’ perception of learning as a result of the peer review, the students were asked, “How well do you think you understood what revisions needed to be made based on your peers' review of your writing?” To assess their perception of learning as a result of giving peer reviews, students were asked, “How well do you think you understood what revisions needed to be made to your own writing as a result of giving reviews to others?” Also, a seven-point Likert scale was used to determine the degree to which students felt VoiceThread™ was useful for facilitating peer review. The means and standard deviations are reported in Table 4-8. Students indicated that receiving feedback from peers and giving feedback to peers resulted in a good understanding for how to approach revision on their own drafts. Of the 22 students surveyed, only one
suggested giving feedback may not have helped her understanding for how to revise
her own draft by selecting 3 from the scale of 1 to 7. All students indicated that they
found VoiceThread™ useful for facilitating peer review; however, these students did not
experience any other type of peer review in this class nor did most fully participate in the
program by engaging in interactive discussions with group members as part of peer
review.

Correlation Analysis

No correlation was found between students’ prediction of performance, changes
in writing self-efficacy from the beginning of the course to the end, or revision skill. A
series of Spearman’s rank-order correlation analyses were run to ascertain whether a
relationship existed between writing self-efficacy, prediction of performance, and
revision skill. Each analysis showed weak correlations of no statistical significance: for
writing self-efficacy and prediction of performance, $\rho = .387, p = .075$; prediction of
performance and revision skill Spearman $\rho = -0.106, p = .640$; and writing self-
efficacy, and revision skills, $\rho = -0.064, p = .776$.

Modality Preferences

Students were also asked which modality (video, audio, or text) was preferred for
giving feedback in VoiceThread™. Two students failed to respond to the question. Ten
students preferred text comments to avoid technical challenges and because it was the
type of feedback they preferred to receive as it was easier to review. One student
stated, “Text. Very often the audio option did not work and it is nice to go back and read
and mark off what needs to be done instead of listening over and over.” Though the
remaining ten students indicated a preference for giving audio feedback, only five of
those ten actually provided audio feedback during the final peer review assignment. The other five individuals provided text comments in VoiceThread™. One student who elaborated on why audio was preferred indicated a “connection” being made with peers, socioemotional interaction. One student explained of audio comments, “There is a better connection and explanation so that your peer don’t [sic] take your response thee [sic] wrong way.” Two other students claimed that audio allowed them to be better understood: “voice recordings, allowed me to speak my mind and to let the writer hear and understand me better” and “Audio I was able to look at the essay and point out to my peers the exact spot I was reading while I was reviewing.”

Summary

Current data analysis indicates that there was not a significant difference in the two groups’ posttest scores on the Writing Self-Regulatory Efficacy Scale after the variance associated with pretest scores was removed. The CMPR students’ pretest scores were notably lower than those using the peer review worksheet. As relates to revision skills, revision skills were similar despite each group differing in peer review instruction and in peer review type. Nor did data analysis reveal a correlation between CMPR, writing self-efficacy, and revision skills for students using CMPR, yet survey questions of student perceptions of peer review, use of VoiceThread™, prediction of performance, and preferred modality for giving feedback showed students believe that giving and receiving feedback impacted their revision choices in addition to VoiceThread™ being a useful tool for peer review. They also showed students can predict their performance with some accuracy and demonstrated how students vary in the mode of feedback that they prefer.
In an attempt to determine what impact CMPR may have had on writing self-efficacy when compared to students using peer review worksheets with no required follow-up interactions, quantitative and qualitative data were collected and analyzed. Quantitative data came in the form of the results of a 25 question Writing Self-Regulatory Efficacy Scale from the beginning and the end of the term. Results were analyzed with a between subjects ANCOVA, and analysis showed the pretest scores contributed strongly to the outcome. Without the pretest as a covariant, no significant difference in posttest scores was found. Further analysis of individual questions on the Writing Self-Regulatory Efficacy Scale through paired t-tests revealed significant differences for specific questions within each group from the beginning of the term to the end, yet these results illustrated an equivalence in self-efficacy improvement between the two groups despite differing peer review conditions. Both groups made significant increases in the Writing Self-Regulatory Efficacy Scale questions 4, 5, and 17 which involved a person’s ability in the creative aspects of writing and in the planning portion of the writing process. A minor distinction between the groups became apparent in how the sections using peer review worksheets showed a significant increase in questions involving one’s perception of self-regulation and perception of one’s ability to revise the organization of an essay. Initial coding of qualitative data showed that feedback in the CMPR condition met the criteria for improving student self-efficacy by primarily consisting of directive and praise comments. Further examination showed that comments varied in substance and length with most feedback focusing on surface writing issues. In order to draw conclusions about why there may not have been significant differences in writing self-efficacy between the groups, the researcher also
examined peer review worksheets and found that, despite not receiving instruction on types of feedback, some students in the peer review worksheet group also used directive comments and praise. Additionally, it was found that for the most part, the CMPR group was not collaborative in its peer review discussions in VoiceThread™. An essential element of CMPR was the collaborative component which was required through dialogue between group members, but while some students posted replies to feedback, extended dialogue was not present in peer review groups.

Like writing self-efficacy between groups, revision skills were also found to be mostly equivalent. Using Cho and MacArthur's (2010) paired down version of Faigley and Witte's (1981) taxonomy of revision changes, student changes from rough draft to final draft were identified, and frequencies were reported. While the most frequent type of change was surface change, students also made many meaning-level changes, which are associated with more skilled writing. Students were categorized based on each student’s percentage of meaning-level changes, following Faigley and Witte’s (1981) findings from their analysis. The Mann-Whitney U test was run to compare the revision skills of those in the CMPR group with the revision skills of those using peer review worksheets, and no statistically significant difference was found. The frequency of specific types of revision change and the results of the Mann-Whitney U test indicated that the groups were alike in their revision practices.

Though it was expected that a relationship between CMPR, students’ writing self-efficacy, and students’ revision processes would be found, further analysis of CMPR student averages on the Writing Self-Efficacy Scale was done through a paired t-test, and results confirmed previous writing self-efficacy findings that there was no significant
improvement in writing self-efficacy within that group. Furthermore, no correlations were found between the variables that would indicate a relationship between CMPR, students’ writing self-efficacy, and students’ revision skills.

Finally, to understand CMPR student perceptions and their relationship to writing self-efficacy and revision skills, the results of questions on students’ judgement of learning, prediction of performance, and preferred modality in VoiceThread™ were examined and correlation analysis was run. Most students’ predictions for how they would perform on their final essay were relatively accurate, within one level of their actual final rubric score. For questions on their perceptions of giving and receiving feedback, students implied that receiving feedback from peers improved their understanding for how to revise their own writing (M= 5.45, SD= .91), and similarly, giving feedback to peers resulted in a good understanding for how to approach revision on their own drafts (M= 5.18, SD= 1.09). Also, students perceived that VoiceThread™ was very useful as a medium for peer review (M= 5.95, SD= 1.13). However, the series of Spearman’s rank-order correlation analyses showed weak correlations of no statistical significance between writing self-efficacy, prediction of performance, and revision skill, and interestingly, while students were evenly divided about their preference for giving feedback through text comments or audio comments in VoiceThread™, only five of the ten individuals who responded with a preference for using the audio comment feature actually posted audio feedback in the final peer review activity.
Table 4-1. Observed and Adjusted Differences between Groups on Self-Efficacy Posttest.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Observed Means</th>
<th>Standard Deviation</th>
<th>Estimated Means</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPR</td>
<td>4.69</td>
<td>.98</td>
<td>4.81</td>
<td>.19</td>
</tr>
<tr>
<td>Peer Review Worksheet</td>
<td>5.33</td>
<td>.96</td>
<td>5.20</td>
<td>.21</td>
</tr>
</tbody>
</table>

Table 4-2. Descriptive Statistics for Pre and Posttest Scores

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMPR (N=22)</td>
<td>Pretest</td>
<td>4.35</td>
<td>.80</td>
</tr>
<tr>
<td></td>
<td>Posttest</td>
<td>4.69</td>
<td>.98</td>
</tr>
<tr>
<td>Peer Review Worksheet</td>
<td>Pretest</td>
<td>4.84</td>
<td>.90</td>
</tr>
<tr>
<td>(N=19)</td>
<td>Posttest</td>
<td>5.33</td>
<td>.96</td>
</tr>
</tbody>
</table>

Table 4-3. Writing Self-Regulatory Efficacy Scale questions showing a significant increase from pretest to posttest in the CMPR sections

<table>
<thead>
<tr>
<th>Writing Self-Regulatory Efficacy Scale Questions (N=22)</th>
<th>Mean Difference</th>
<th>SD</th>
<th>t</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. I can come up with an unusual opening paragraph to capture readers' interest.</td>
<td>-.773</td>
<td>1.31</td>
<td>-2.77</td>
<td>.011*</td>
</tr>
<tr>
<td>5. I can write a brief but informative overview that will prepare readers well for the main thesis of my paper.</td>
<td>-.727</td>
<td>1.32</td>
<td>-2.59</td>
<td>.017*</td>
</tr>
<tr>
<td>17. When I write on a lengthy topic, I can create a variety of good outlines for the main sections of my paper.</td>
<td>-.682</td>
<td>1.49</td>
<td>-2.14</td>
<td>.044*</td>
</tr>
<tr>
<td>20. I can find ways to motivate myself to write a paper even when the topic holds little interest for me.</td>
<td>-.727</td>
<td>1.42</td>
<td>-2.40</td>
<td>.026*</td>
</tr>
<tr>
<td>p &lt; .05*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4-4. Writing Self-Regulatory Efficacy Scale results for questions showing a significant increase from pretest to posttest in the peer review worksheet sections

<table>
<thead>
<tr>
<th>Writing Self-Regulatory Efficacy Scale Questions (N=19)</th>
<th>Mean Difference</th>
<th>SD</th>
<th>t</th>
<th>Sig. (two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. I can come up with an unusual opening paragraph to capture readers’ interest.</td>
<td>-.789</td>
<td>1.13</td>
<td>-3.03</td>
<td>.007*</td>
</tr>
<tr>
<td>5. I can write a brief but informative overview that will prepare readers well for the main thesis of my paper.</td>
<td>-.632</td>
<td>1.26</td>
<td>-2.19</td>
<td>.042*</td>
</tr>
<tr>
<td>7. I can adjust my style of writing to suit the needs of any audience.</td>
<td>-.789</td>
<td>1.03</td>
<td>-3.34</td>
<td>.004*</td>
</tr>
<tr>
<td>16. I can refocus my concentration on writing when I find myself thinking about other things.</td>
<td>-.737</td>
<td>1.45</td>
<td>-2.22</td>
<td>.040*</td>
</tr>
<tr>
<td>17. When I write on a lengthy topic, I can create a variety of good outlines for the main sections of my paper.</td>
<td>-.632</td>
<td>1.07</td>
<td>-2.59</td>
<td>.019*</td>
</tr>
<tr>
<td>18. When I want to persuade a skeptical reader about a point, I can come up with a convincing quote from an authority.</td>
<td>-.947</td>
<td>1.31</td>
<td>-3.15</td>
<td>.006*</td>
</tr>
<tr>
<td>22. I can revise a first draft of any paper so that it is shorter and better organized.</td>
<td>-.632</td>
<td>1.26</td>
<td>-2.19</td>
<td>.042*</td>
</tr>
</tbody>
</table>

p < .05*

Table 4-5. Frequency of feedback types in six VoiceThread™ peer review groups.

<table>
<thead>
<tr>
<th>Directive</th>
<th>Praise</th>
<th>Nondirective</th>
<th>Summary</th>
<th>Off-Task</th>
<th>Criticism</th>
</tr>
</thead>
<tbody>
<tr>
<td>122</td>
<td>113</td>
<td>34</td>
<td>17</td>
<td>14</td>
<td>6</td>
</tr>
</tbody>
</table>
Module 7: Rhetorical Analysis

Name of Reviewer: [redacted]

Purpose: For the peer review, students will be responsible for reviewing a draft of another student’s essay. The purpose of the peer review is for a person who has not read the essay to read it for understanding and meaning from a fresh and objective perspective.

Directions: Carefully read another student's draft rhetorical analysis essay, and answer the following peer review questions. Where appropriate, give examples from the text to help illustrate comments. Try to maintain a helpful and constructive tone when making suggestions or pointing out areas that need further development.

Introduction

1. Are the article title and author introduced for the work being analyzed? The article and author are stated in the introduction though there is not a title for the essay.

2. What does the student writer state as the main argument of the article? The main argument is about oceans warming and disputing claims of a slowdown in rising ocean temperatures.

Thesis Statement

1. What does the thesis state the student writer’s essay will analyze? The thesis states that Meyer shows he was unbiased by showing opposing ideas and disproving them. I would suggest that the thesis be reworded a little to create a more clear message stating how Meyer uses pathos, logos, and ethos in his argument.

2. Does the thesis state whether article being examined is effective or ineffective at using the three persuasive appeals? The thesis states that the author is unbiased; however, doesn’t clearly convey use of pathos, ethos, and logos in the thesis.

Body Paragraphs

1. How is the paper organized: least to most important, time order, or some other way? The paper appears to be organized by stating logos then goes into discussing counter arguments.

2. Find a brief example in the essay of where the student writer has analyzed the author’s use of ethos, pathos, and logos.

   Ethos: Notes that the author provides counter arguments and disproves them but

Figure 4-1. Example of student using directive feedback on peer review worksheet.
Figure 4-1. Continued

no other use of ethos is noted.

Pathos: Does not appear to be mentioned in the essay. I would recommend adding a paragraph to discuss this.

Logos: The essay discusses using logos throughout the article by proving sources such as NOAA and UC Berkeley.

Coherence

1. Are there places in the essay where the student writer has not stayed in third person? There are a few instances that use "you" and "I think" and "I believe" rather than staying in third person.

2. Does the writer or peer have any questions or concerns about grammar in this paper? Which sentence(s) contain(s) the question or concern? There were a few instances of extra spaces between words and commas or semi-colons. I’d recommend reviewing the essay and revising as needed.

I think the essay is well organized and thought out; however, I would recommend adding some more paragraphs discussing ethos and pathos more thoroughly and also cite another source that either disproves the author’s points or supports them.

Research

1. Does the student writer of the analysis correctly use signal phrases and cite any borrowed information in the body of the essay (in-text citations) and well as at the end of the essay (works cited)? The works are not cited at the end of the essay and also needs an additional source.

2. List any places where you think sources have not been properly cited. The reference listed is in an incorrect format. The in-text citations appear to be accurate.
Figure 4-2. Example of praise comments for students using peer review worksheets.

Table 4-6. Average number of surface level changes and meaning level changes for peer review conditions

<table>
<thead>
<tr>
<th>Peer Review Condition</th>
<th>Surface Changes</th>
<th>Meaning Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative Multimedia Peer Review</td>
<td>47.7%</td>
<td>52.3%</td>
</tr>
<tr>
<td>Peer Review Worksheet</td>
<td>48.7%</td>
<td>51.2%</td>
</tr>
</tbody>
</table>

Table 4-7. Comparison of individuals’ diagnostic average, prediction of performance average, and actual final average in CMPR.

<table>
<thead>
<tr>
<th>Diagnostic Rubric Score Average</th>
<th>Prediction of Performance Rubric Score Average</th>
<th>Actual Final Essay Rubric Score Average</th>
<th>Difference in Prediction and Actual Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.50</td>
<td>4.00</td>
<td>4.00</td>
<td>.00</td>
</tr>
<tr>
<td>3.25</td>
<td>3.50</td>
<td>3.75</td>
<td>.25</td>
</tr>
<tr>
<td>4.00</td>
<td>3.00</td>
<td>4.00</td>
<td>1.00</td>
</tr>
<tr>
<td>3.25</td>
<td>4.50</td>
<td>4.50</td>
<td>.00</td>
</tr>
<tr>
<td>3.25</td>
<td>3.75</td>
<td>3.75</td>
<td>.00</td>
</tr>
<tr>
<td>3.25</td>
<td>3.00</td>
<td>3.25</td>
<td>.25</td>
</tr>
<tr>
<td>2.25</td>
<td>2.75</td>
<td>2.75</td>
<td>.00</td>
</tr>
<tr>
<td>4.00</td>
<td>4.00</td>
<td>4.75</td>
<td>.75</td>
</tr>
<tr>
<td>4.00</td>
<td>3.00</td>
<td>3.25</td>
<td>.25</td>
</tr>
<tr>
<td>2.00</td>
<td>4.75</td>
<td>4.00</td>
<td>-.75</td>
</tr>
<tr>
<td>3.50</td>
<td>4.25</td>
<td>2.50</td>
<td>-1.75</td>
</tr>
<tr>
<td>2.75</td>
<td>3.00</td>
<td>4.50</td>
<td>1.50</td>
</tr>
<tr>
<td>3.00</td>
<td>3.50</td>
<td>4.00</td>
<td>.50</td>
</tr>
<tr>
<td>3.25</td>
<td>4.25</td>
<td>4.25</td>
<td>.00</td>
</tr>
<tr>
<td>3.25</td>
<td>3.75</td>
<td>4.50</td>
<td>.75</td>
</tr>
<tr>
<td>3.50</td>
<td>4.00</td>
<td>3.25</td>
<td>-.75</td>
</tr>
</tbody>
</table>
Table 4-7 Continued

<table>
<thead>
<tr>
<th>Diagnostic Rubric Score Average</th>
<th>Prediction of Performance Rubric Score Average</th>
<th>Actual Final Essay Rubric Score Average</th>
<th>Difference in Prediction and Actual Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.00</td>
<td>4.50</td>
<td>4.50</td>
<td>0.00</td>
</tr>
<tr>
<td>2.75</td>
<td>4.75</td>
<td>4.50</td>
<td>-0.25</td>
</tr>
<tr>
<td>2.75</td>
<td>4.00</td>
<td>4.25</td>
<td>0.25</td>
</tr>
<tr>
<td>2.75</td>
<td>3.75</td>
<td>3.50</td>
<td>-0.25</td>
</tr>
<tr>
<td>3.50</td>
<td>4.25</td>
<td>4.75</td>
<td>0.50</td>
</tr>
<tr>
<td>2.75</td>
<td>4.75</td>
<td>4.00</td>
<td>-0.75</td>
</tr>
</tbody>
</table>

Table 4-8. Collaborative Multimedia Peer Review student perceptions of usefulness of giving/receiving feedback and VoiceThread™.

<table>
<thead>
<tr>
<th>Question</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>How well do you think you understood what revisions needed to be made</td>
<td>4</td>
<td>7</td>
<td>5.45</td>
<td>0.91</td>
</tr>
<tr>
<td>based on your peers' review of your writing?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How well do you think you understood what revisions needed to be made</td>
<td>3</td>
<td>7</td>
<td>5.18</td>
<td>1.09</td>
</tr>
<tr>
<td>made to your own writing as a result of giving reviews to others?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How useful was VoiceThread™ for engaging in peer review with your</td>
<td>4</td>
<td>7</td>
<td>5.95</td>
<td>1.13</td>
</tr>
<tr>
<td>classmates?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 5
DISCUSSION AND IMPLICATIONS

The purpose of this study was to examine the relationships between instruction based on Zimmerman and Kitsantas’ (2002) social cognitive model for sequential skill acquisition, students’ writing self-efficacy, revision skills, and perceptions as they relate to peer review, revision, and learning in online college composition courses. Collaborative Multimedia Peer Review (CMPR) was the instructional strategy that incorporated composition theory and social cognitive theory in order to support students in collaborative learning to develop revision skills.

Composition theory emphasizes the importance of audience in the writing process (Breuch, 2003; Ede & Lunsford, 1984; Kellogg, 2008; Magnifico, 2010; Mitchell & Taylor, 1979). Social cognitivism similarly emphasizes how learning is a social activity and self-efficacy is important to self-regulation (Bandura, 1991, 1997; Schunk & Zimmerman, 1997; Zimmerman, 2002; Zimmerman & Schunk, 2001). CMPR was developed to promote student self-efficacy through observational learning, specific feedback types, and through dialogue between students in peer review. As a result, it was hypothesized student revision skills would be more focused on global issues in writing rather than surface issues.

VoiceThread™ was the technology selected to facilitate peer review for CMPR in order to replicate a face-to-face collaborative environment through the availability of its multimedia communication tools as studies have shown students may prefer video or screen casting feedback over written feedback (Crook et al., 2012; Hung, 2016). While two sections of online composition utilized CMPR (n = 22), the other three sections utilized peer review worksheets (n = 19). For these students, pretraining on peer review
was provided, but they were not specifically taught about feedback types that promote writing self-efficacy. Rough drafts and completed peer review worksheets were exchanged on small group discussion boards in Blackboard™, and students were not required to respond to each other’s feedback. This study took place over the course of a semester, sixteen weeks. Students took a diagnostic essay quiz and the Writing Self-Regulatory Efficacy Scale in week 2, and they studied peer review in week 3. They participated in peer review for the first time in week 4 and had three more peer review activities (one for each assigned essay) with the last peer review taking place in week 14. In weeks 15 and 16, they completed the Writing Self-Regulatory Efficacy Scale once more.

Interestingly, the students using CMPR were found to have a much lower average on their initial attempt at the Writing Self-Regulatory Efficacy Scale than the students using the peer review worksheet, though the groups were often found to be similar in their peer review interactions for the last writing assignment. Despite the limitations of having a small number of students in each group, the differences in pretest average and improvements in scores on the Writing Self-Regulatory Efficacy Scale at the end of the course could indicate CMPR may have contributed to improvements in self-efficacy. Also, the CMPR students’ comments on perceptions of VoiceThread™ provide some insight into the reasons a student may prefer text over audio comments and vice versa. These results could have implications for how instructors deliver feedback in online classes as well. CMPR students also found both giving and receiving feedback to be useful to their revision practices.

Four research questions guided this study:
1. To what extent does Collaborative Multimedia Peer Review contribute to students’ writing self-efficacy in an online freshman composition course?

2. To what extent does Collaborative Multimedia Peer Review contribute to students’ revision process in an online freshman composition course?

3. What relationship, if any, exists between Collaborative Multimedia Peer Review, students’ writing self-efficacy, and students’ revision process in an online freshman composition course?

4. What are students’ perceptions of receiving and providing feedback using voice and video comments in VoiceThread™ and how do they relate to students’ self-efficacy and revisions strategies?

**Writing Self-Efficacy**

Self-efficacy has been shown to impact self-regulation, especially for difficult tasks, (Bandura, 1991, 1997; E. Jones, 2008; Schunk & Zimmerman, 1997; Zimmerman & Bandura, 1994; Zimmerman & Kitsantas, 2002; Zimmerman & Schunk, 2001), and the process of writing and revising is a complex, yet essential, component of composition courses. In particular, feedback can impact a learner’s self-efficacy (Bandura, 1997; Cho, Schunn, & Charney, 2006; Ekholm et al., 2014; Zimmerman & Kitsantas, 2002). Students also experienced error management training where they were encouraged to manage rather than avoid errors (Keith & Frese, 2008). Because error management training helps learners deal with negative emotions that can result from making mistakes more positively (Carter & Beier, 2010; Keith & Frese, 2008), it works well in writing instruction where making errors is an accepted part of the process. In feedback on assignments leading up to each final essay, I emphasized negotiating errors rather than avoiding errors by being encouraging in my responses and by allowing students to revise and resubmit their outlines as they worked through their understanding of each essay assignment. I suspected that greater improvements in self-efficacy would result
from CMPR. The instructional model was developed according to the social cognitive model for sequential skill acquisition, a model that emphasizes self-efficacy improvement through observational learning and social interaction (Zimmerman & Kitsantas, 2002), and error management training counters the negative effects avoiding errors can have on self-efficacy.

**Writing Self-Efficacy Scale**

According to the quantitative data, while students using CMPR did not achieve a higher level of writing self-efficacy at the end of the course than the students using peer review worksheets, the CMPR group began the course with a lower average on the Writing Self-Efficacy Scale pretest. This could indicate that the treatment may still have impacted the students using CMPR, which supports the research demonstrating how feedback and error management training can positively impact self-efficacy.

Another possibility is that some students in CMPR overestimated their writing self-efficacy at the beginning of the course or that variations in writing self-efficacy over the duration of the course played a role in the difference between groups at the end. Other research has shown that learners may overestimate their writing ability, which may impact the accuracy of their reported self-efficacy and how it increases or decreases (Raedts, Rijlaarsdam, van Waes, & Daems, 2007; Sanders-Reio et al., 2014; Zimmerman & Kitsantas, 2002). Also, one’s self-efficacy can vary over the course of a learning task, which can impact future performance (Bernacki, Nokes-Malach, & Aleven, 2015). Given the potential of one’s self-efficacy to vary, more accurate measures of peer review’s impact on self-efficacy for the duration of a course may require more frequent assessment, perhaps after each peer review activity.
Also, an analysis of individual questions on the Writing Self-Regulation Efficacy Scale showed that students in both groups overlapped in how their perceived ability to create and plan improved from the beginning of the course to the end, indicating that many students believe their weakness lies in getting started on a writing task as opposed to reviewing or revising their work. While a significant distinction between novice and more skilled writers lies in revision practices that focus more on global issues (Faigley & Witte, 1981; Kellogg, 2008; Sanders-Reio et al., 2014; Yang, 2011; Zimmerman & Bandura, 1994; Zimmerman & Kitsantas, 2002), another important distinction between novice writers and those who are more skilled lies in the ability to invent or develop a writing plan because one’s ability in this stage of the process demonstrates an understanding of how writing is a recursive process (Becker, 2006; Witte & Faigley, 1981). The instructional video used in CMPR did not touch on the planning or development stage of the writing process, but both groups of students had to develop an outline as a prewriting activity in the course. Outlining has been shown to lessen the cognitive load associated with the writing process (Baaijen et al., 2014; Kellogg, 1988). Practice and experience in developing an outline for each writing assignment may have contributed to how both groups perceived improvement in this specific area of self-efficacy.

Qualitative data was equally important to the conclusions drawn from this study, so weighing the quantitative results with the qualitative data collected from peer review groups was a key factor in drawing conclusions about students’ self-efficacy.

Feedback Types

Qualitative data analysis revealed similarities in the type and depth of feedback used by students in both groups. Specific feedback types (directive, non-directive, and
praise) were emphasized in CMPR because feedback type can impact one’s perception of the usefulness of peer review which can impact self-efficacy (Cho, Schunn, & Charney, 2006; Ekholm et al., 2014). However, analysis revealed that students using the peer review worksheet in some cases utilized the same feedback types. As peer review is considered a “best practice” in K-12 courses as well as in college composition (Loretto, DeMartino, & Godley, 2016; Schunn, Godley, & DeMartino, 2016), this finding could indicate that students experienced peer review prior to freshman composition and potentially knew how to provide directive comments and praise (even though they may not have known the specific labels associated with those feedback types). This has important ramifications for how college composition instructors approach peer review since the findings indicate that students in freshman composition do not necessarily need to be taught the feedback types that may promote self-efficacy. CMPR focused mainly on demonstrating how to give feedback. When developing peer review activities for college composition, modeling how to give feedback may not be as important to improving student self-efficacy as strategies for prompting meaningful dialogue beyond giving and receiving feedback.

However, many of the directive comments touched on specific assignment requirements. Some students closely examined what was being communicated in other group members’ essays and how it aligned with the assignment details more so than how well group members’ essays fit the criteria for well-developed college writing. However, understanding the writing situation, the context of the writing task, is an essential skill for students developing their written communication skills. Comments that referenced the assignment requirements would have shown students where they were
not meeting the expectations of the writing task and informed some of their revision
decisions. I believe this is evident in the number of macro-new changes students made
from their rough to final draft, which was 122 total changes made by 21 of the 41
students from both groups. Students being more aware of whether they were meeting
expectations for the writing task may have influenced their self-efficacy positively or
negatively depending on how those comments were received, but the additional
presence of praise comments in the feedback should have had a positive impact on
self-efficacy in both groups.

Self-Reflection

Qualitative data analysis also revealed the presence of self-reflection within
some students’ feedback posts in CMPR. Students in both the CMPR groups and peer
review worksheet groups were required to write reflections as part of each essay
submission, but evidence of self-reflection within feedback posts indicates that
metacognitive monitoring may have been taking place as students reviewed their
classmates’ drafts. This adds to research that indicates the act of giving feedback can
impact students’ ability to evaluate their own writing (MacArthur & Philippakos, 2013)
and supports findings on students’ perceptions of giving feedback improving their
understanding of how to approach revision discussed in CMPR Student Perceptions
below. Also, the presence of self-reflection for the five students who referenced their
own writing as part of their feedback comments may indicate that critical thinking as a
result of collaborative learning was occurring in these cases.

Peer Review Dialogue

Interaction between writer and audience is essential to the development of
writing skills (Breuch, 2003; Mitchell & Taylor, 1979; Nystrand, Greene, & Wiemelt,
Dialogue following feedback posts for the CMPR group was an important collaborative element since students are able to relate to each other’s difficulties (Cho & MacArthur, 2010) and articulating which suggestions they chose to take or not take would have allowed students to convey their thinking process about revision choices (Yang, 2011).

For both groups of students, gratitude was expressed, which can cause a sense of community in group work (Kwon et al., 2014), and such comments may have also impacted writing self-efficacy. However, analysis of responses to feedback in both groups showed the groups to be similar in the absence responses focused on discussing revision. Meaningful responses to feedback were a required component of peer review in CMPR, but replies from reviewees to their reviewers were mostly superficial, and there was no further dialogue beyond a reply when a reply was provided. Additionally, students using the peer review worksheet also posted replies in many cases though they were not encouraged to do so, which was unexpected.

The results indicate, in the case of the students using CMPR, discussion in a different online environment may not impact known challenges associated with meaningful dialogue between students in online course discussions. (Their perceptions on modality are discussed further down.) When responses to peer feedback were provided in VoiceThread™, often they were superficial and did not prompt an ongoing dialogue. The few responses that might have prompted further discussion were ignored by other group members. The lack of collaborative dialogue may have been because some feedback was abrupt and lacked depth. In cases where feedback consisted only of praise or identified minor surface and typographical errors, there was little opportunity
for meaningful replies though two students posed questions to prompt further discussion which were ignored by classmates. Another possible cause may have been that students did not see the importance of dialogue following initial feedback posts. The dialogue was one component of peer review that, if not completed, could result in a loss of points but not failure of the assignment. Since responses were not a higher stakes activity, students may have believed they were not as important a component as the initial comments giving feedback. These findings further illustrate how online discussions often fail to achieve the level of critical thinking and learning for which they are developed (Maurino, 2007; Schwartzman & Morrissey, 2010; Mooney et. al., 2014).

Without discussions that prompt interaction and critical thinking, the “collaborative” piece that was critical to Collaborative Multimedia Peer Review was mostly absent (Mooney et al., 2014; Zhao et al., 2014).

For some students using the peer review worksheet, replies on the discussion board were provided without provocation from the instructor. While these replies also did not make meaningful contributions to discussions on writing, they were similar to responses in CMPR in that they expressed gratitude. Both groups had individuals who expressed gratitude to reviewers for their feedback. While that may have improved the sense of community for individuals in each group, it would not have prompted collaborative critical thinking on revision choices. The lack of meaningful interaction in the CMPR group though dialogue was supposed to be part of peer review, and the presence of responses in the other groups though responses were not necessary, are noteworthy results since they imply a common knowledge of feedback and interaction students may automatically engage in when reviewing drafts.
The lack of interaction in this study’s peer review groups is not unusual, but unlike general online discussions, in research on peer review interactions, the instructor does not typically interject (Cho, 2006; Cho & MacArthur, 2010; Kaufman & Schunn, 2011). However, in order to promote more collaborative learning in peer review, students need to have more meaningful conversations, and increased instructor presence may be necessary. Research indicates that online discussions may benefit from direct prompts by the instructor within each the group or by guiding discussion questions (An, Shin, & Lim, 2009; Dringus, Snyder, & Terrell, 2010; Kovanović, Gašević, Joksimović, Hatala, & Adesope, 2015). In online peer review discussions, as in any online discussion, increased instructor involvement may be required to ensure more meaningful online conversations between students (Maurino, 2007). This has important implications for composition instructors in developing peer review online since instructor interaction within peer review groups is not typically a key element of peer review activities.

**Revision Practices**

Examining revision practices was intended to show how many changes were meaning-level changes, those that address global issues of development, style, and organization. Individuals are considered to be more skilled if their revision is focused on meaning-level changes (Faigley & Witte, 1981; Kellogg, 2008; Sanders-Reio, Alexander, Reio, & Newman, 2014; Yang, 2011). Based on individual students’ percentage of meaning-level change, they were categorized according to Faigley and Witte’s (1981) analysis of the averages for change types between inexperienced, advanced, and expert writers. An examination of revision practices showed the students in different peer review conditions were very similar in the frequency of surface changes.
and meaning changes though I expected students in the CMPR group to have more meaning-level changes than students using peer review worksheets.

These results may confirm how, in some cases, differences in peer review condition do not significantly impact student writing, such as in Covill's (2010) study where no significant difference was found in the final drafts between students in a peer review condition with those in a self-review condition and no review. The results may also show that observational learning plays an important role in peer review when groups are arranged heterogeneously by skill. Weaker students in both groups had the opportunity to observe the writing of stronger students who performed well on the diagnostic essay and on subsequent writing assignments.

Alternatively, the results may instead identify an important issue in trying to categorize students' writing skill level based on revision choices. Students using CMPR and students using peer review worksheets aligned closely in the average amount of change types, and most students were labeled as “expert” because of their number of meaning changes compared to surface changes, but none met the criteria for being categorized as “advanced,” and only a few were “novice.” This was unexpected since they were all in a freshman college composition course. From analysis of revision, it would seem that students demonstrated the revision practices of more skilled writers. The absence of students in the “advanced” category and the large number falling into the “expert” category indicates that there is a need for further study on the revision practices of individuals at various levels and development of more robust instruments to measure revision skill. These findings mean that student writing and revision practices need to be examined more closely to arrive at a better baseline for how college
freshmen write and revise. Having so many students fall into the “expert” category does not accurately identify those students as expert writers. When Faigley and Witte (1981) studied their revision taxonomy, drafts were handwritten. Tools and affordances for writing and revision have changed considerably. In Faigley and Witte’s (1981) study of revision, participants hand wrote drafts with different color pens. Unlike the early 1980’s, currently access to word processors is ubiquitous, and deleting as one writes makes large, meaning-level changes easier. Differences in hand written composition and writing with a word processor have been found (Chadwick & Bruce, 1989; Mogey & Hartley, 2013). Chadwick and Bruce (1989) specifically found differences in how students using word processors make more macrostructure changes. While versions of the Faigley and Witte (1981) revision taxonomy are still used to analyze revision, there have not been updated discussions on how individuals’ revision practices can be used to categorize their skill level.

If composition instructors have a better idea of how novice, advanced, and expert writers revise, we would be better able to teach students how to become more skilled. Also, modeling revision made up a brief section of the CMPR instructional video, about two and half minutes towards the end of the video. Once composition faculty understand how students at different levels approach revision, we can develop peer review instruction that places more emphasis on modeling the revision practices of expert writers.

Relationships between CMPR, Writing Self-Efficacy, and Revision

Self-efficacy is a key aspect of self-regulation, and self-regulation is necessary for tackling complex learning tasks such as revision (Bandura, 1991, 1997; Bruning & Kauffman, 2015; MacArthur & Philippakos, 2013; Pajares, 2003; Schunk & Zimmerman,
1997). As a result, correlational analysis was performed to ascertain whether there may have been relationships between CMPR, students’ writing self-efficacy, and students’ revision processes. I expected to see a moderate to strong positive correlation, but no such relationship was discovered. The absence of a correlation between CMPR, writing self-efficacy, and revision choices may be likely due to the small number of students who remained in the CMPR group and, consequently, due to decreased statistical power. Also, this finding may have to do with the limitations of the Faigley and Witte’s (1981) taxonomy relative to the writing and revision context in my study. Students were characterized as “novice,” “advanced,” and “expert” based on Faigley and Witte’s (1981) findings. In their study, participants were categorized based on classes they were taking or their careers in a writing field, and the study’s results showed how those in each group revised. However, there were only six participants in each level, and the participants were volunteers, not required to write well for a grade or other compensation. These qualities could have impacted the accuracy of revision practices in each of Faigley and Witte’s three groups and may have also caused the categories to be misapplied in the current study. Also, as noted in the previous section, students’ use of writing and revision technologies such as word processing tools could have impacted how they fit into Faigley and Witte’s three groups more so than their actual revision skill, which would have impacted the correlational analysis. Reconsidering instructor engagement in peer review discussions and having a clearer perception of students’ revision practices, as discussed in the sections above, would also potentially impact the correlation we might see between an instructional method, self-efficacy, and revision skills in future research.
CMPR Student Perceptions

An important goal of this study was also to explore student perceptions of receiving and providing feedback, usefulness of VoiceThread™, and their self-efficacy and revision strategies. Student perceptions are an important variable. As research has shown, perceptions can influence student self-efficacy and engagement with a task (Brammer & Rees, 2007; Cho, Schunn, & Charney, 2006; Kasanga, 2004). Student responses to a judgement of learning question and a prediction of performance question provided some interesting results. While the variables were not correlated in this study, students believed both giving and receiving feedback impacted their revision practices. This supports research on the students’ perceptions of the benefits they may gain from peer feedback (Baker, 2016; Cho, Schunn, & Charney, 2006; Kasanga, 2004; Ludemann & Mcmakin, 2014). Also, most students’ predictions for how they would perform on their final essay were within one level of their actual final rubric score, which shows that students may have succeeded in their metacognitive monitoring, an important feature of self-regulation (Anderson & Thiede, 2008; Thiede & Anderson, 2003; Thomas, Antonenko, & Davis, 2016).

Of equal value were student responses regarding the usefulness of VoiceThread™ and their comments. Half of the students in CMPR did prefer to give or receive audio comments, but the other half preferred text. The students who preferred audio comments explained they had the sense of having a more personal connection with each other and of being better understood through voice comments as opposed to text comments. This finding adds to the research supporting how audio or audiovisual feedback may be preferred in some cases because it is perceived to be more detailed.
and more personal than written feedback (Crook et al., 2012; Hung, 2016; Jones et al., 2012; Vincelette & Bostic, 2013). However, the preference of half of the students for text comments cannot be overlooked. While audio feedback added to students’ sense of making personal connections, some students preferred text comments because they believed text comments were easier to review and apply. These results have important implications for not only peer review, but also the delivery of feedback in online learning environments. Some learning management systems, for example Canvas™, provide instructors with affordances to generate audio and video feedback in addition to, or as a substitute for, traditional text-based feedback. The results of this study indicate that this decision may impact students in a class in different ways, with some students appreciating audio or video feedback due to an enhanced perception of personal connection with the instructor, whereas others may wish to receive text feedback that allows them to use review strategies that they are comfortable with. Student preferences for certain feedback types may impact the ease with which they are able to use feedback to improve, so it may be necessary to offer feedback in multiple modalities.

Revising CMPR

Findings from this study identified some areas where CMPR could be improved for future implementation. While peer review groups were initially heterogeneous based on students’ diagnostic essay scores, it became evident through students’ outlines (submitted prior to peer review) and students’ rough drafts that there were individuals who did not understand specific assignment requirements in spite of the general writing skills displayed through their diagnostic essay scores. An addition to CMPR could
include an assignment checkup quiz, a low stakes quiz students must complete after reviewing the module lecture but before they can access the links for submitting their essay outlines and drafts. This assessment would alert the instructor to which students in the course need additional instructional support before going forward in their writing process. Offering more support to students who seem not to understand course content would also direct peer review feedback and dialogue to focus primarily on the quality of writing and not on whether or not group members have mentioned required terms or concepts from the assignment description.

Also, since students using peer review worksheets utilized directive feedback and praise comments without being instructed to do so, the video used in CMPR to instruct students in how to give feedback could be edited to cut out the explanation of feedback types. Instead, more attention could be given to modeling follow up dialogue and to modeling effective revision strategies.

To better facilitate collaborative learning through the required dialogue, instructor presence needs to become a part of peer review activities in CMPR. Also, students’ social presence needs to be better prompted. Students need guidance on how to interact in ways that allow for more collaborative learning opportunities. Peer review activities could be developed as protocol-based discussions, a type of structured discussion that is meant to promote problem-solving among students as well as self-reflection, and support from others in the group (Zydney, Denoyelles, & Kyeong-Ju Seo, 2012). In addition to posting a draft in VoiceThread™, students would use the software to also post a video identifying the areas they believe need improvement and their purpose for choosing a particular topic. The instructor can also guide the peer review
discussion by addressing specific questions to each student in the group after they have offered their own initial feedback. The instructor comments can direct the students’ attention to specific areas of each other’s’ writing that require additional feedback. An instructor comment may be, “Student 1, Student 2 has said she is working on being more specific in the examples and details she provides. In looking at Student 2’s paragraph three, offer her some feedback on her use of specific details. Think about how you utilize details in your own writing. Provide Student 2 with a strategy that you use when you write to help you formulate specific details.” In this comment, the instructor would directly address a student and suggest something he could offer more feedback on without telling him specifically what may be wrong or what corrections to recommend. A similar comment from the instructor could be directed to Student 2 in this example, directing her to talk to Student 1 about how she thinks his feedback will improve her writing.

The dialogue requirement also might seem more important to students if it is graded separately so that students would see a zero or a low score in their grades if they haven’t engaged in a meaningful dialogue with the other members of their group. In Zydney et al.’s (2012) use of protocol-based discussion, the researchers found that students preferred clear, simple instructions with rubrics and due date reminders. For CMPR, a rubric could be developed for grading timely posting of drafts, inclusion of a video by the draft author indicating goals and areas that he or she wants to improve on, and initial feedback posts and shared with students. A separate rubric could be developed and shared that demonstrates how follow up dialogue would be graded. The
day before a deadline, the instructor could send out a reminder announcement to the class about upcoming deadlines as well.

**Implications for Future Practice**

Students encounter challenges outside of classes that may impact their ability to participate in course assignments or may impact their motivation to persist in a course, and it is difficult to account for all possible issues. In this study, sample size became a major limitation as many students did not persist in the course or failed to fully engage in all assignments. Despite my predictions that students in the CMPR group would improve in self-efficacy and revision skills over students using the peer review worksheet, CMPR students did not outperform the comparison group; nevertheless, the findings have significant implications for future practice in developing peer review activities in online composition.

Given how important self-efficacy is to performance, composition instructors need to be more intentionally aware of the impact feedback (peer feedback and instructor feedback) can have on student self-efficacy. Error management training (Keith & Friese, 2008) in particular should be more widely used in composition instruction as a means of promoting self-efficacy and encouraging students to expect to have to make meaningful changes throughout their writing process. CMPR students’ self-efficacy at the end of the course did not significantly exceed that of students using the peer review worksheet, yet CMPR students also scored notably lower on the Writing Self-Regulatory Efficacy Scale at the beginning of the course. Also, the difference in CMPR students’ pre-and posttest self-efficacy scores approached significance. This result, in addition to their perceptions about the usefulness of VoiceThread™ and comments at the end of
the course, support the possibility that using CMPR may have influenced the self-efficacy of students who struggle with writing or perceive themselves to be poor writers. Additionally, the similarities between how groups engaged in peer review has implications for what content may be important to include in peer review instruction. Planning is an important element of writing self-efficacy and should be something instructors specifically guide students through. Instruction for how to plan an essay was not specifically addressed in CMPR though it was included in all courses through a planning and outlining worksheet students used prior to submitting their rough drafts. The examination of how each group scored on specific Writing Self-Regulatory Efficacy Scale questions showed that students in both groups improved on questions related to the creative and planning aspects of writing. This finding may have resulted from the planning activities that were provided in all courses, particularly the outline assignments. Outlines were required for all classes because outlining can decrease the cognitive load associated with a complex task (Baaijen et al., 2014; Kellogg, 1988). In the case of this study, requiring outlines may have contributed to self-efficacy improvement in the planning stage of the writing process.

In developing writing and peer review instruction, particular types of feedback may not need to be explained. Feedback that is perceived well by those who receive it impacts self-efficacy (Cho, Schunn, & Charney, 2006; Ekholm et al., 2014), but types of feedback do not need to be defined for students as part of peer review. Students who were assigned peer review worksheets used directive feedback and praise comments even though they were not taught to use these types of comments while students using CMPR were. These results indicate that specific types of feedback that promote self-
efficacy do not need to be explicitly defined when demonstrating how to engage in
effective peer review.

While feedback types may not need to be specifically defined as they were in
CMPR, a stronger focus on improving self-regulation and the modeling of effective
revision strategies should be emphasized. The analysis of individual questions on the
Writing Self-Regulatory Efficacy Scale showed a lack of significant improvement in most
questions related to revision, such as “I can rewrite my wordy or confusing sentences
clearly.” As a result, a larger part of composition instruction needs to include specific
approaches to revision. The findings from the current study are important in how they
highlight what specific qualities of the writing process, peer interaction, and revision
should be part of composition instruction.

Another meaningful conclusion revealed through this study is that challenges in
prompting students to participate in discussions that promote learning can persist
despite modeling dialogue and changing the discussion environment. The results
illustrated how students using CMPR failed to engage in meaningful discussions as part
of peer review. The dialogue that was a required component of peer review in CMPR
courses lacked in depth, and replies, if any were posted, were lacking in content.
Composition instructors do not typically view peer review discussions as being the same
as general discussions in online classes, so instructors do not usually engage with
students in their peer review discussions. However, if composition faculty want
collaborative learning to occur, it may be necessary to develop additional prompts to
post within peer review discussions so that students make posts that indicate they are
thinking critically about the stages of writing and how to improve their own practices.
Other strategies for stimulating productive discussions may also apply (e.g., Stahl, 2015).

As demonstrated in this study, the various writing skill levels students bring to a composition course can be difficult to ascertain and to categorize, but studying approaches to revision is key to understanding students’ writing skills. Once composition instructors understand how students at different skill levels approach revision, and the role word processing software plays, we can more effectively model advanced and expert revision strategies to students as part of composition instruction. We would also be able to offer feedback more specifically geared towards helping students attain better revision skills. Word processing software makes large changes to content and organization easier than it would be for handwritten compositions. Use of this software may have an important influence on individuals’ revision processes, something that has not been explored in other studies using versions of the Faigley and Witte (1981) revision taxonomy. More research is needed on the revision processes of individuals at various writing skill levels in order to better develop a standard for how novices, advanced students, and skilled writers revise.

The students’ divided preference for audio and text comments in this study also has implications for how feedback should be delivered and for designers of multimedia feedback software. Instructors for online courses, not just online composition courses, may need to take into consideration students’ preferred feedback modality in order to make feedback accessible to students. If students prefer text feedback, as half of the students using CMPR did, they might not utilize feedback delivered via audio or video. Asking students at the beginning of a course what their feedback preferences are could
be a way of ensuring the modality fits their preferences, but whether or not delivering feedback in different modalities is possible may depend on the resources available in specific learning management systems or what other software instructors can access. Leaving audio feedback in Blackboard™, for example, is a complex process because there is no embedded tool, at least not in the version of Blackboard™ used at my institution. This makes it difficult for instructors, and for students, to utilize audio for feedback or discussion posts within the LMS.

While this study found few differences in groups using different peer review conditions, the findings add to the research on peer review and the revision practices of students taking freshman composition and bring us closer to conceptualizing a potential standard practice in CMPR. These findings provide some insight into a few features that may be important to improving students’ writing self-efficacy and interactions in peer review, such as error management training, requiring planning activities like outlines, instructor presence in peer review discussions, and a stronger focus on modeling revision strategies. Yet the findings of this study also raise more questions that practitioners and researchers in composition studies need to examine in order to come to a better understanding of how to design peer review and feedback delivery in online courses that can develop stronger academic writers. Written communication is an important interdisciplinary skill, so composition instructors have a responsibility to examine our instructional practices, how we facilitate peer review, and how feedback is both delivered and received in order to understand what our students need and to improve upon current teaching methods.
### APPENDIX A
### DIAGNOSTIC ESSAY RUBRIC

<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>Level 5</th>
<th>Level 4</th>
<th>Level 3</th>
<th>Level 2</th>
<th>Level 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONTENT</strong></td>
<td>Has a clear and perceptive thesis that is fully supported with specific, relevant examples and contains no generalizations</td>
<td>Has a clear thesis that is supported with many specific, relevant examples but may have a few generalizations</td>
<td>Has a clear thesis that is supported with some specific details and examples but contains some generalizations</td>
<td>Has a thesis that is not clearly defined and is supported largely by generalizations</td>
<td>Has no thesis and has inadequate or irrelevant support</td>
</tr>
<tr>
<td><strong>ORGANIZATION</strong></td>
<td>Demonstrates a clear and insightful progression of ideas; transitions are seamless and skillful; has an organic and sophisticated structure</td>
<td>Demonstrates a clear progression of ideas; transitions are effective; has an effective structure</td>
<td>Demonstrates a clear progression of ideas; transitions are adequate; has an adequate structure</td>
<td>Lacks a clear progression of ideas; transitions are abrupt and sometimes inaccurate; has an inconsistent structure</td>
<td>Lacks a progression of ideas; transitions are nonexistent or inaccurate; has no discernible structure</td>
</tr>
<tr>
<td><strong>CONVENTIONS</strong></td>
<td>Errors in grammar, mechanics, spelling, and word choice are insignificant.</td>
<td>Errors in grammar, mechanics, spelling, and word choice are occasional.</td>
<td>Some errors in grammar, mechanics, spelling, and word choice are evident but do not interfere with readability.</td>
<td>Errors in grammar, mechanics, spelling, and word choice are frequent and sometimes interfere with readability.</td>
<td>Numerous errors in grammar, mechanics, spelling, and word choice are abundant and often interfere with readability</td>
</tr>
<tr>
<td>LANGUAGE and AUDIENCE</td>
<td>Language choices are fresh and innovative. Sentences are skillfully worded. Sentence structure is both varied and sophisticated. Tone is exemplary and shows sophisticated awareness of the audience and purpose</td>
<td>Language choices are precise and purposeful. Sentences are clearly worded and unambiguous. Sentence structure is varied and competent. Tone is well-suited to the purpose and audience.</td>
<td>Language choices are appropriate and accurate. Sentences are generally clearly worded though there may be minor problems with syntax or omissions; these minor errors do not interfere with readability. Sentence structure is varied. Tone is appropriate for the purpose and audience.</td>
<td>Language choices are adequate; occasional errors in diction or usage may interfere with meaning. Occasional errors in syntax or problems with wording may lead to ambiguity or interfere with readability. Sentence structure lacks variety and tends to be mechanical. Tone shows some awareness of audience and purpose though some choices may be inappropriate for the writing task.</td>
<td>Language choices are limited, inadequate, or inaccurate. Syntactical errors or ambiguous wording may lead to confusion. Sentence structure is simplistic or disjointed. Tone is inappropriate for the specific audience and purpose.</td>
</tr>
</tbody>
</table>
# APPENDIX B
## QUALITATIVE ANALYSIS CODEBOOK

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment</td>
<td>Feedback references a particular aspect of the lecture such as explaining a persuasive appeal.</td>
</tr>
<tr>
<td>Macro-level</td>
<td>Changing meaning</td>
</tr>
<tr>
<td>New Points</td>
<td>Adding entirely new points or paragraphs, not just elaborating on an existing point</td>
</tr>
<tr>
<td>Organization</td>
<td>Changing or deleting transitional elements</td>
</tr>
<tr>
<td>Micro-level</td>
<td>Meaning-preserving change</td>
</tr>
<tr>
<td>Micro Complex</td>
<td>At the sentence or paragraph level, fixing points by changing or deleting</td>
</tr>
<tr>
<td>Micro Extended</td>
<td>Elaborating on a point by adding</td>
</tr>
<tr>
<td>No change</td>
<td>Indication writing requires no revision</td>
</tr>
<tr>
<td>Surface</td>
<td>Changes such correcting spelling, tense, punctuation, abbreviation, technical, etc.</td>
</tr>
<tr>
<td>Closing Remark</td>
<td>Polite closing to a comment offering &quot;good luck,&quot; &quot;best wishes&quot; or some similarly polite statement.</td>
</tr>
<tr>
<td>Feedback Plan</td>
<td>Laying out how feedback will be provided.</td>
</tr>
<tr>
<td>Criticism</td>
<td>making a negative observation about one &amp; Charney,</td>
</tr>
<tr>
<td>Directive</td>
<td>suggestions for specific changes</td>
</tr>
<tr>
<td>Nondirective</td>
<td>General comment applicable to any paper--observes a general area needing improvement</td>
</tr>
<tr>
<td>Off-task</td>
<td>Comment not related to essay improvement</td>
</tr>
<tr>
<td>Praise</td>
<td>encouraging observations on the whole or a portion of the paper.</td>
</tr>
<tr>
<td>Summary</td>
<td>Comments where the feedback summarizes an element of the essay or the entire essay</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Follow Up</td>
<td>A comment predicts future performance or expectation that the person whose draft is being reviewed may already plan to fix something.</td>
</tr>
<tr>
<td>Gratitude</td>
<td>Appreciation or thanks</td>
</tr>
<tr>
<td>Modality</td>
<td>What comment type in Voice Thread was utilized</td>
</tr>
<tr>
<td>Audio</td>
<td></td>
</tr>
<tr>
<td>Text</td>
<td></td>
</tr>
<tr>
<td>Reference Peer</td>
<td>A reviewer refers back to what another reviewer in the group commented.</td>
</tr>
<tr>
<td>Reply</td>
<td>Individual's response to peers' feedback</td>
</tr>
<tr>
<td>Accept feedback</td>
<td>In reply, the student indicates he/she will use feedback</td>
</tr>
<tr>
<td>Reject feedback</td>
<td>Student indicates he/she won't use feedback</td>
</tr>
<tr>
<td>Justification</td>
<td>Student explains why he/she won't use feedback</td>
</tr>
<tr>
<td>Request</td>
<td>Requests additional comments or poses a question for additional feedback.</td>
</tr>
<tr>
<td>Self-reflection</td>
<td>Reviewer reflects on an element of his/her own writing as part of feedback.</td>
</tr>
<tr>
<td>Technical</td>
<td>Indication that someone is experiencing technical issues.</td>
</tr>
<tr>
<td>Uncertainty</td>
<td>The person indicates that he/she is not sure about a comment by using question marks, contradicting him/herself, or using a term that indicates uncertainty.</td>
</tr>
</tbody>
</table>
LIST OF REFERENCES


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BIOGRAPHICAL SKETCH

Audrey Michelle Antee graduated from the University of Louisiana at Monroe in 2002 with her bachelor’s degree in English literature. She continued her education at the University of North Florida where she earned her master’s degree in English Literature in 2004. She worked as a part-time instructor at Florida State College at Jacksonville in 2005, teaching composition and literature face-to-face and online. She also taught for Baker College and Cochise College as an online instructor. In 2011, Audrey was hired as a Professor of English at Florida State College at Jacksonville where she continues working today. She teaches professional development workshops to colleagues on technology and teaching practices in different modalities and has been involved in online curriculum development at FSCJ. Her research interests include computer supported collaborative learning in freshman composition, mobile learning in formal and informal learning environments, and student motivation in composition courses.