Transcending Disciplinary Lines to Promote Student Achievement at the Post-Secondary Level

Erinn Bentley and Jennifer Brown
Columbus State University

Writing proficiencies in the K-12 setting and at the post-secondary level have become stagnant and have decreased in some instances. Several studies indicated using peer review was beneficial for students by increasing student engagement and providing appropriate feedback. The purpose of this study was to examine the use of a peer review workshop as a pedagogical tool to promote teacher-candidates' increased proficiency in writing and teacher-candidates' increased skills in using peer review as a formative assessment tool. The mixed methods study used the peer review forms completed by the participants and a follow-up survey as the data sources. The researchers found participants provided specific feedback, but they seemed to have difficulty clearly articulating specific strengths and weaknesses regarding the organization and mechanics of their peers' essays. The implications for using this pedagogical tool are to continue to refine the peer review form and process. In addition, other discipline specific techniques and strategies should be explored regarding their ability to transcend discipline lines and promote teacher-candidates' general pedagogical knowledge.

Over the past two decades, students within the US's K-12 learning environments have not made substantial gains in writing achievement (Applebee, Langer, Mullis, Latham, & Gentile, 1994; Applebee & Langer, 2009). For example, 70% of students in grades four, eight, and 12 were ranked as low-achieving writers according to a recent National Assessment of Educational Progress (NAEP) report (Persky, Danne, & Jin, 2003). Standardized test results have caused scholars to believe that adolescents (defined as students in grades four through 12) are experiencing "a writing proficiency crisis" (Graham & Perin, 2007, p. 11). This writing proficiency crisis not only impacts students in elementary and secondary settings. The ACT (2005) cited that one-third of high school graduates are not prepared for college-level composition courses. Further, some post-secondary institutions have reported increased enrollment in remedial composition courses (e.g., Hoyt & Sorenson, 2001; Ignash, 1997), suggesting that students may need additional support in composing academic and professional genres beyond the K-12 educational setting.

According to scholars (e.g., Coker & Lewis, 2008; Graham & Perin, 2007; National Commission on Writing 2003, 2004, 2005; National Writing Project & Nagin, 2006; Persky et al., 2003), adolescents need ongoing instruction in writing across genres and disciplines to promote their achievement beyond the K-12 classroom, into post-secondary classrooms, and into the workplace. Providing adolescents with quality writing instruction requires the preparation of quality writing teachers across grade levels and content areas.

In recent years, faculty within a teacher education department noticed a decline in the writing proficiencies of education majors early in their coursework. To address these students' writing deficiencies and to better prepare them as future writing teachers, these faculty designed a writing project spanning four entry-level foundations courses. The purpose of this foundations writing project was three fold: to help students improve their writing skills by focusing on a specific genre within each course, to help students prepare for workplace communication by exposing them to genres within the education profession, and to engage students in pedagogical strategies for teaching writing within their future classrooms. More specifically, faculty adopted one pedagogical practice—peer review workshop—to improve student writing proficiencies and model formative assessment practices among pre-service teachers.

The purpose of this study was to examine the use of a peer review workshop as a pedagogical tool to promote students' increased proficiency in writing and students' increased skills in using peer review as a formative assessment tool. Considering the current crisis in adolescent literacy, it is imperative that all preservice teachers—across grade levels and content areas—learn how to be skilled writers and teachers of writing. This study represents one way in which teacher preparation programs can transcend disciplinary boundaries and provide teacher candidates with the general pedagogical knowledge needed to address their future students' writing needs.

Related Literature: Peer Review as a Pedagogical Tool

Fallows and Chandramohan (2001), and Ozogul, Olina, and Sullivan (2008) expanded the concept of formative assessment in higher education to include the evaluation of "student work that is still under

development" (Ozogul et al., 2008, p. 182). One pedagogical strategy often used as a formative assessment tool is peer review or evaluation. For the purposes of this discussion, peer review refers to "the structuring of a process to allow peers to review each other's professional processes and/or products with the goal of improving such processes or products" (Woolf & Quinn, 2001, p. 22).

Several studies have indicated using peer review was beneficial for students. For example, Orsmond, Merry, and Reiling (1997) reported students both enjoy the peer review process and attribute this process to their learning. Peer review has also been linked to students' development of critical thinking skills (Li & Steckelberg, 2004), students' increased level of engagement with an assignment (Anderson, Howe, Soden, Halliday, & Low, 2001), and students' overall awareness of the evaluation process (Smith, Cooper, & Lancaster, 2002). Historically, peer review has frequently been used in post-secondary educational settings as a pedagogical tool within first-year composition courses. Two recent studies investigated the use of peer review as a formative evaluation tool among pre-service teachers. Ozogul et al. (2008) compared the use of teacher, peer, and self-evaluation of lesson plans among preservice secondary teachers. This study indicated peer evaluation positively affected student achievement; the authors believed more efficient training of students in the process of formative assessment might further increase their writing proficiency. Next, Ozogul and Sullivan (2009) investigated methods for providing students with appropriate peer evaluation training, resulting in higher student achievement gains. These studies affirmed the review of literature on peer review as an effective instructional strategy; further, these studies indicated that peer review not only improved student learning but also trained preservice teachers in formative assessment practices.

While the studies of Ozogul and Sullivan (2009) and Ozogul et al. (2008) indicated that peer review can be implemented effectively within teacher education coursework, it is important to note the context of this research. In both studies, participants were junior-level undergraduate students who were secondary-level education majors. Students were enrolled in a 300-level computer education course (Ozogul et al., 2008) and in an upper-level technology design course (Ozogul & Sullivan, 2009). In both studies, the writing assignment in which student engaged in peer review was focused on integrating technology into lesson plans. As the students were upper-level undergraduates, it may be assumed they already possessed some background knowledge in general education as well as content knowledge in their respective disciplines. Therefore, their prior knowledge may have affected their

understanding and experience using formative assessment tools, such as the peer review process. Ozogul and Sullivan (2009) noted that the study of peer review as a means for training preservice teachers is in need of further investigation, particularly among students early in their education coursework. They stated,

> It would be appropriate to extend the research to other types of tasks to investigate the generality of the present findings and to lower grade levels in an effort to identify an approximate level at which students can begin to use such procedures effectively. (Ozogul & Sullivan, 2009, p. 408)

Transcending Disciplinary Lines, Promoting General Pedagogical Practices

In an effort to address the gap in research identified by Ozogul and Sullivan (2009), two faculty members within a teacher education department investigated the use of peer review among preservice teachers enrolled in an introductory (2000-level) foundations education course. The purpose of this study was three fold. First, peer review was implemented as a pedagogical strategy for teaching a new writing project and improving students' writing skills. Second, peer review was used as a means for training preservice teachers in formative assessment methods. Finally, implementing peer review (as a component of the new writing project) represented a philosophical change in the Teacher Education Department's policy regarding educational foundations courses. That is, by adopting a core writing assignment within the foundation courses, the Teacher Education Department recognized the need for all preservice teachers to become skilled writers and trained teachers of writing. Further, the department recognized the need for locating evidence-based strategies in other disciplines and applying them to their practice.

Until the implementation of this core writing project, focus on entry-level preservice teachers' writing skills (within this department) was primarily delegated to the first-year composition courses. Writing is not a set of discrete skills that can be mastered in a single semester. Rather, many scholars view writing as a complex process of learning that extends over time (Emig, 1971; Flowers & Hayes, 1981; National Writing Project & Nagin, 2006). When it comes to writing proficiency, preservice teachers are doubly burdened. Not only must they become proficient writers themselves in order to succeed in their academic coursework and compose professional genres (e.g., resumes, lesson plans, and teaching philosophies), they must also learn pedagogical strategies for teaching writing within their future K-12 classrooms.

According to research, composition pedagogy is not often explicitly included in preservice teachers' coursework. The National Writing Project (NWP) and Nagin (2006) reported, "With the exception of college-level teaching geared to the freshman writer, composition pedagogy remains a neglected area of study at most of the nation's thirteen hundred schools of education, where future public school teachers are trained" (p. 5-6). In sum, preservice teachers (across grade levels and content areas) need focused instruction on improving their own writing skills as well as pedagogical training for teaching and evaluating writing. This study, then, addressed this gap in literature by adopting the peer review practice within a foundational education class to improve the writing skills of preservice teachers and to introduce to them to one formative assessment tool through a hands-on approach.

Method

Participants

The Department of Teacher Education is part of a 4-year institution in the Southeastern United States that is considered a master's level school. Enrollment at the state university has increased over the past 5 years and reached a maximum of 8,307 in the fall of 2011. The participants included 29 members of an undergraduate diversity course. Of the 29 participants, there were 21 (72.4%) females and 8 (27.6%) males. Regarding racial classification, there were 20 (69.0%) White students, 6 (20.7%) Black students, and 3 (10.3%) Hispanic students. Their ages ranged from 19 to 30. Their majors included early childhood education, fine arts education, foreign language education, middle grades education, physical education, secondary education, and special education. The purpose of this course was to prepare preservice teacher candidates for teaching culturally diverse students in the K-12 setting. This diversity course was a required program component for all education majors and typically completed during the freshman or sophomore year.

Data Collection

Within the department, the faculty and staff who teach the educational foundation courses saw a need to develop the following skills with the students: (a) follow the directions for a given writing prompt, (b) write for a specific audience, (c) synthesize ideas in source-based assignments, and (d) proofread for errors. The ultimate goal was to develop strategies for improving the writing of education majors. With these needed skills and ultimate goal in mind, the faculty decided to locate strategies from other disciplines to improve the writing of the education majors. Thus, the creation of the foundation writing projects and the implementation of the peer review writing workshop were conceived. Among four educational foundations courses, five writing projects were developed (i.e., literacy narrative, classroom management plan, educational philosophy, classroom newsletter, and interview/reflective essay). In addition to the improvement of writing scores within the educational foundations courses, this work has potential to transcend those departmental barriers that exist in the K-12 setting and at the post-secondary level.

The participants were assigned one of the foundations writing projects, Tracing One's Roots. For this project, the participants interviewed a member of their family. Using the information gained during the interview(s), the participants wrote a reflective essay describing their cultural heritage. After completing the rough draft, the participants self-selected partners to complete the peer review writing workshop either virtually or face-to-face. The completed workshop forms, along with the rough draft, were emailed to the instructor. See Appendix for the peer review form used for the Tracing One's Roots assignment.

The peer review form contained 14 items. These 14 items were divided into three sections: Structure and Mechanics of the Paper, Ideas Expressed, and Impact. The Structure and Mechanics section contained five open-ended questions that asked about the paper's title, introduction, conclusion, and effective communication convention (e.g., punctuation, spelling, and grammar). The section concluded with a 5-point Likert-type scale, with 5 being the highest, for the peer-reviewer to rate the structure and mechanics of the paper. In the Ideas Expressed section, there were four open-ended questions about interviewee, the author's discussion of his or her culture, family structure, and customs, and which areas of the paper needed further development. There were two 5-point Likert-type scales, with 5 being the highest rating for the peer-reviewer to rate the discussions of culture and family. The last section, Impact, contained one item that asked the peer reviewer to indicate the area of the paper that he or she liked the best and the area that was the most distinctive and memorable.

At the end of the course, the participants were given follow-up questions to evaluate the peer review process. The first question asked the participants to rate the overall peer review experience on a scale of 1 (*very dissatisfied*) to 4 (*very satisfied*). The second question involved participant to commenting on the peer review process, including whether they liked or disliked the process. The third question required participants to describe their participation in a peer review process for written assignments in other college courses at this institution and, if so, to indicate the course(s).

Data Analysis

This project used qualitative and quantitative evidence to inform the practice within the educational foundations coursework. By using this exploratory mixed methods research design, the researchers were able to use the follow-up quantitative data and results to build upon the qualitative data and results. Thus, the researchers were able to triangulate the data to interpret the findings. The peer review workshop forms were analyzed for emerging themes. The Likert-type response data and frequency data were analyzed using descriptive statistics.

Results

Peer Review Forms

Of the five questions focused on the essay's structure and mechanics, two questions yielded the most specific feedback from peer reviewers. Question 1 was, "Does the title capture your interest? Does it fit the ideas expressed in the paper? Explain." Of the 24 students, 12 reviewers provided feedback on their peer's title by referring to specific ideas in the essay being reviewed. That is, peer reviewers did not simply state that the title was effective because it was interesting or "catchy." Instead, the reviewers chose key concepts from their peer's essay as evidence of the title's effectiveness. For instance, one reviewer commented that her peer "did a lot of work to trace her mom's roots." Another believed the reviewed title accurately portrayed the writer's "heritage from Africa" and his pride in this heritage. Finally, a third peer reviewer explained: "the title leads me to believe that religious and physical aspects of Devon's culture will be discussed, which they are."

Another way in which students commented specifically on their peer's title was by citing specific terms within the title. Among the 24 peer reviewers, only four provided such feedback on individual terms. For example, one reviewer responded to the effective use of the word "blood" in the title by stating, "I think anything with the word 'blood' will catch anyone's attention, no matter the context. I believe that the title prepares the reader for what the paper is about, and I believe it matches its content well." Similarly, when a student writer did not provide a clear description for the term "roots," the peer reviewer suggested the following:

> [The title] "My Family Roots" did catch my interest. However, I feel that the writer focused mostly on her grandmother and mother. Therefore, the "roots" did not go very far, when I think of family roots I think about more than 3 generations. The paper expresses the family values passed down

from a grandmother and mother, I would like to know that from the title.

In these two responses, reviewers used a single word within the title as a springboard for analyzing key concepts or ideas within their peer's essays. Overall, over half the reviewers (18 of 24 students) provided specific feedback regarding the essay's title by quoting words from the title being reviewed or by referring to explicit words or phrases relating to the essay's main ideas.

Similarly, peer reviewers provided specific feedback in response to Question 4, "Does the paper have a conclusion that relates to the title/theme and brings closure? Explain." Here, 11 of the reviewers rated their peer's conclusion as "successful" because it summarized or wrapped up the essay's main point/theme. For example, one stated, "Her conclusion does relate back to her opening paragraph"; another reviewer explained, "He reiterates the information about his ancestors"; and a third reviewer said, "Yes, the paper does recap what was said in the opening argument, as it is supposed to do." The last comment cited was particularly interesting. In this statement, the reviewer not only agreed with her peers—a successful conclusion "recaps" or "reiterates" the essay's main argument. In the second half of the statement, she also remarked, "as it is supposed to do." This phrase indicated the reviewer was cognizant of what a conclusion "does" or how this single component "works" within the context of the essay genre.

Other reviewers evidenced their understanding of what a conclusion "does" by telling their peers how to improve their essays' endings. One student remarked, "The paper lacks a conclusion and does not provide the reader with any closure"; and another stated, "I felt like the paper just ended." Another peer reviewer advised, "Find [a] better concluding sentence to let the reader know it has officially ended." Yet another reviewer suggested, "Writer needs to make sure that the conclusion brings closure to the reader, summing up your points or providing a final perspective on your topic." These responses indicated that peer reviewers were not only able to identify when an essay lacked a successful conclusion; they also explained one or more traits for an effective ending and offered clear, concise advice on how their peer could revise his/her conclusion.

Compared with these two questions regarding the essay's title and conclusion, the remaining three questions on structure and mechanics did not yield many detailed, specific responses from the reviewers. Question 2 was, "Does it have an interesting opening that relates to the title/theme and engages the reader? Explain." Peer reviewers responded in a variety of ways. Five reviewers indicated that their peer's

introduction was successful because it introduced the writer or talked about the writer's background. Two additional reviewers complimented their peer's use of imagery and considered descriptive details as a good way to draw the reader into the essays. The majority of peer reviewers did not provide specific commentary on whether the conclusion was effective. Many simply responded with comments such as, "The opening paragraph is great" and "It helped me dive into this well written paper."

Similarly, even when reviewers recognized that their peer's essay did not contain an effective introduction, they did not provide much constructive feedback. Vague comments included, "I think some things in the first paragraph can be taken out"; "The opening could be better formatted"; and, "The opening needs a little work but over all [is] perfect." Overall, there was no clear consensus among the reviewers as to what makes an introduction "interesting" and "engaging." Neither in the positive nor negative responses, then, did peer reviewers clearly indicate the function of an introductory paragraph in this genre, characteristics of an effective introduction, or advice for improving a weak introduction.

Reviewers also seemed to have difficulty clearly articulating specific strengths and weaknesses regarding the organization and mechanics of their peer's essay. Questions 3 and 5 involved students commenting on their peer's use of transitions and communication conventions (e.g., punctuation, spelling, and grammar). In response to their peers' use of transitions, 14 of the 24 reviewers did not offer specific advice or explanation. Reviewers most frequently summed up their peers' writing by saying the essay "flowed smoothly" or "didn't flow." Only two provided constructive advice on increasing the flow. These reviewers suggested their peers use more transitional words. No explanation was given providing examples of transitional words, how to use such transitional words, and what other writing techniques might promote essay flow. Likewise, reviewers provided very little specific feedback regarding their peers' use of mechanical conventions. Of the 24 reviewers, only seven referred to specific grammatical or mechanical issues within their peer's essay (e.g., run-on sentences, verb use, comma splices, and passive voice).

In addition to the open-ended questions eliciting students' responses to an essay's structure and mechanics, ideas expressed, and impact, there were also three Likert-type response items within the peer review form. When asked to rate the structure and mechanics, the ratings given by the peer reviewers ranged from 3 to 5, $M = 3.94$, $SD = 0.70$. For the discussion of the cultures, $M = 3.85$, $SD = 0.95$, range = 1-5. On the discussion of family, customs, and traditions, $M = 4.08$, $SD = 1.04$, range = 1-5. These results indicate an uncertainty regarding the meaning of a 1 and the meaning of a 5 on the Likert scale. All three response items had similar means, which could indicate the peer reviewers were using the prompts within the peer review form to guide their ratings.

Follow-Up Survey

The quantitative responses from the follow-up questions were analyzed using descriptive and frequency statistics. The open-ended responses were analyzed for emerging themes. The results showed that the participants were satisfied with the overall peer review process, $M = 3.28$, $SD = 0.74$. The ratings ranged from 2 (*dissatisfied*) to 4 (*very satisfied*). The positive comments about the experience included the points that the participants were able to find and correct mistakes before submitting final essay drafts for evaluation, and that the participants gained a different perspective on their ideas, which offered constructive criticism. In addition, the participants felt the experience was beneficial for gaining additional insight into the cultural backgrounds of a fellow classmate. An unexpected response to the peer review experience was "it can help prepare you for future grading practices." This response was interesting because the foundations instructor did not tell explicitly teach the peer review workshop as a pedagogical tool for use in the K-12 classroom setting. Instead, this student's positive first-hand experience with peer review workshop as a writer informed her beliefs and practices for teaching writing in a future K-12 environment.

According to the questionnaire, there were also a few negative comments on the experience. For instance, some participants believed the writing knowledge and skills of the peer reviewer affected their learning process; other participants preferred face-to-face versus virtual peer review workshops. When asked about other peer review experiences, 60.7% of the participants indicated that they had been involved with peer reviews in other college courses, but an overwhelming majority of the listed courses were English. Two participants listed Spanish courses; none of the other disciplines were listed.

Discussion

Student Writers' Prior Knowledge

The students' responses to the open-ended questions on their peer review forms revealed some interesting findings regarding their prior knowledge of genre components and writing terminology. Given the data collected and analyzed, these student writers know what purposes a title and conclusion serve in an essay. According to their responses, the students believe a

successful title clearly conveys the essay's main point or theme. Additionally, the majority of students believe a conclusion's purpose is to summarize or wrap up the essay's main point or theme. The students' detailed responses to these two questions suggest they feel competent and confident in these writing proficiencies; they are able to clearly articulate why their peer crafted an interesting title/conclusion, and they explain how to improve these essay components to peers who have not mastered them. Conversely, the students' vague responses to their peers' introductory paragraphs, use of transitions, and mechanical conventions suggest these students may possess less competence and confidence in these essay components.

As teachers, it is important to recognize that students' own competence and confidence regarding specific writing proficiencies may profoundly impact the type of feedback they offer as peer reviewers. When asking student writers to provide feedback on their peers' writing proficiencies, we may need to provide models of unsatisfactory, satisfactory, and exemplary writing. Further, simply providing students with writing samples may not sufficiently teach them how to differentiate and evaluate various components of writing within a single assignment. Instead, we may need to explicitly show students how to read and analyze each individual writing component.

In short, we cannot assume all our students share the same understanding of the academic and professional genres we teach within our education courses. Students enrolled in the foundations course examined in this study represented seven sub-fields of education. Each student's content-area background may have impacted his/her prior knowledge regarding academic and professional genres. For example, a secondary-level English major may be familiar with the literary analysis essay genre. A special education major may be familiar with classroom management plan genre. While both of these genres share several similar components (e.g., introduction, thesis, and conclusion), characteristics of a "successful introduction" may vary from genre to genre. Student writers, when moving from course to course and from genre to genre, may not always recognize the differences in these writing components or understand the need for adapting to these different writing situations.

In his essay, "Inventing the University," composition scholar David Bartholomae (2003) noted that students early in their postsecondary coursework often struggle when they are asked to write for a new audience or in an unfamiliar context. He explained:

> Every time a student sits down to write for us, he has to invent the university for the occasion—invent the university, that is, or a branch of it, like history or anthropology or economics or English.

> The student has to learn to speak our language, to speak as we do, to try on the peculiar ways of knowing, selecting, evaluating, reporting, concluding, and arguing that define the discourse of our community. (Bartholomae, 2003, p. 623)

Students in educational foundations courses, then, must learn the discourse of the education community. When writing a teaching philosophy, a reflection essay, a lesson plan, or another education-related genre, students must determine which language is appropriate for that particular audience and context. Further, student writers must navigate different approaches for composing an introduction, an argument, or a conclusion based on their knowledge of the genre's conventions and the community discourse. Thus, as teachers who work with student writers across content areas, we may need to be more explicit when discussing, modeling, and guiding students in writing the academic and/or professional genres required in our courses.

In addition to recognizing students' differing understandings of genres and genre components, we also need to remember that students' prior knowledge of writing terminology may vary. As is illustrated in these sample peer review evaluations, student writers have the capacity to provide specific, detailed feedback on their peers' work. However, in order to provide such detailed feedback, students must first understand the terminology used to describe writing skills and genre components; next, students must be comfortable using such terminology appropriately. In the open-ended peer review responses, students seemed to struggle most when asked to identify their peer's mechanical errors and provide feedback on their peer's use of transitions. In these responses, very few students used specific terms, such as "comma splices," "pronouns," "antecedents," or "coordinating conjunctions." The fact that most students simply provided vague remarks—"fix punctuation errors" or "it all looks good"—suggests that these students either do not recognize mechanical/transitional errors, or they do not know how to articulate the errors.

Considering that in an undergraduate foundations course—a general requirement for all education majors—only a few students will ultimately become secondary-level English teachers, it may seem unnecessary to recommend faculty devote attention to writing terminology. Such terminology, after all, is typically discipline-specific. For instance, elementary-level physical education majors or secondary-level math majors might wonder how learning writing terms will be helpful to their pedagogical knowledge and development. All preservice teachers, across content-areas and grade-levels, need training and support in the teaching of writing. As the Common Core State

Standards are being implemented nationwide, all K-12 teachers are impacted. More specifically, teachers are now required to teach and assess their students' literacy achievement in all content areas. The Common Core State Standard Initiative (2010) explained:

> The Standards set requirements not only for English language arts (ELA) but also for literacy in history/social studies, science, and technical subjects. Just as students must learn to read, write, speak, listen, and use language effectively in a variety of content areas, so too must the Standards specify the literacy skills and understandings required for college and career readiness in multiple disciplines. (p. 3)

With college and career readiness as the goal for all K-12 students, The Common Core State Standard Initiative (2010) called all teachers to share the responsibility of students' literacy development. Thus, regardless if a preservice teacher intends to teach science, English, or special education, he/she will need training and practice in literacy education. While it is not recommended for faculty members teaching education courses to spend an extensive amount of time on discipline-specific terminology and concepts, transcending or blending disciplinary lines may help preservice teachers learn valuable general pedagogical knowledge, such as strategies for teaching writing within their grade-levels and content-areas, that can generalize to their future classroom practices.

Transcending Disciplinary Lines Can Lead to Valuable Pedagogical Knowledge

As mentioned earlier, one student in this study commented that the peer review workshop "can help prepare you for future grading practices." This student, then, found the hands-on experience responding to her peer's writing as an effective way to model and practice methods for evaluating writing in her future K-12 classroom. This student's experience represents a key finding of this study: the peer review workshop can transcend disciplinary lines by incorporating a technique mainly reserved for English Composition classrooms into an educational foundations course to promote students' general pedagogical knowledge. By participating in the peer review workshop, students gained first-hand experience as to how this formative assessment tool may be used to guide and develop students' writing proficiencies. In this study, the instructor did not spend class time discussing how students might adopt the peer review workshop to future K-12 classroom settings, nor did the instructor require students to develop a strategy for using peer review within a discipline-specific writing assignment

(e.g., a lab report for a secondary-level biology class, or a poem for an elementary-level language arts lesson). Future research could include pairing the peer review workshop experience with a pedagogical assignment in which students devise a strategy for incorporating peer review into a lesson for use in a specific K-12 learning context.

Another key finding from this study was the improvement of students' basic mechanics within the peer-reviewed writing assignment. Students' final drafts included substantially fewer mechanical errors than in their earlier drafts. Based on the data collected, it is not evident if the reduction of errors was directly linked to the feedback students received during the peer review workshop. Another possible explanation for students' improvements in mechanical errors may simply be attributed to the prolonged writing process students underwent. That is, in this assignment, students were required to compose a rough draft, submit that rough draft to their peer, and receive the draft back (with peer feedback) before turning the paper in for a final evaluation (completed by the course instructor). This prolonged writing process did not permit students to compose at the last minute and submit a hastily-completed final draft for a final evaluation. By including the peer review step in this assignment's writing process, students were forced to slow their writing and revising pace.

The peer review workshop itself, according to the post-workshop questionnaires, was viewed positively by the majority of students. That being said, results from this study indicate further refinements in the peer review workshop are needed. One possible refinement would be to offer examples to illustrate poor and exemplary work as defined by the instructor. Also, the peer review form could include clearly defined meanings for each level of the five point Likert-type response scale. With the current peer review form, students were simply asked to provide overall ratings for three components of the paper. By providing descriptions of the ratings and examples of what constitutes a rating of 5 versus a 1, students might provide better feedback regarding the reviewed paper's strengths and weaknesses. For example, instructors might revise the peer review form to include rubric components for each section being reviewed. By seeing the rubric components, students might be reminded of the grading criteria for each essay component and align ratings of their peers' work to the final grading criteria. Another positive result of the peer review workshop was the peer interaction and collaboration, which is valuable in the diverse K-12 classroom. Interacting with other students tends to increase thinking and depth of understanding. Involvement in peer collaboration can increase productivity, develop relationship among the students, and improve self-esteem (Chickering &

Gamson, 1987). There is a large amount of empirical evidence that has shown the relationship between cooperation among students and increased student satisfaction, student achievement, and student persistence (Grayson, 1999; Hughes & Pace, 2003; Weidman, 1989; Whitt, Edison, Pascarella, Nora, & Terenzini, 1999).

Challenges and Suggestions for Incorporating Peer Review Workshops

As indicated in the results from this study, adopting pedagogical strategies from one discipline can positively impact the learning of students enrolled in general education coursework. More specifically, utilizing a peer review workshop to support students through the drafting and revising stages of a major writing project led to higher quality final drafts, positive peer collaboration, and exposure to a formative assessment tool education majors might use within their future K-12 classrooms. Despite these positive outcomes, the researchers acknowledge that the adoption of a peer review workshop within a non-English course does present some challenges.

When the researchers met with other members of their Teacher Education Department to discuss methods for incorporating peer review into their courses, the first challenge faculty raised was time. With a great deal of content to teach in a 15-week semester, faculty members worried that using class time to conduct a peer review workshop would not be feasible. In order to guide students in such a workshop, an instructor will need to relinquish some instructional time (e.g., lecture, group activity, or class discussion); however, to complete the peer review worksheet described in this study required only 30 minutes of class time. During the workshop, the instructor assisted individual students with questions regarding their peer's paper or their own draft. Upon completing the workshop, each student possessed immediate feedback to guide him/her in making revisions.

An alternative way to provide students with feedback throughout the drafting process is for the instructor to read each draft and write individualized comments; however, responding to 24 to 30 students' drafts may take a substantial amount of time for the instructor, and students do not receive the feedback immediately. This individualized approach to feedback also does not allow students to engage in collaborative discussions of their writing, thinking, and learning. Finally, prolonging feedback may interrupt the students' momentum in the writing process or motivation to continue revising the draft. Thus, though an instructor may be hesitant to give up class time to conduct a peer review workshop, that brief workshop may actually take less time and lead to better results than providing students with individual feedback.

Another challenge faculty members rose regarding the implementation of a peer review workshop pertains to writing-specific knowledge (or lack thereof) among students. In other words, if students are not writing experts, can they provide quality feedback on their peers' papers? Though stronger writers generally do make stronger reviewers, it is important for instructors to view peer review not as a grammar workshop. That is, the reviewers are not meant to line-edit their peers' mechanical and structural errors. Instead, the workshop should serve as a formative assessment, where reviewers provide feedback on a writer's ideas and how clearly the writer conveys ideas. Even if students are not future English majors and do not understand specific writing terminology (e.g., dangling modifier, antecedent, or comma splice), students can successfully participate in a peer review workshop by describing the writer's main idea, the clarity of the writer's logic, and when the writer's ideas are confusing. For example, in the peer review worksheet used in this study, the Ideas Expressed and Impact sections do not require students to use writing-specific terminology. Instead, students simply comment on the paper's meaning and ideas. Therefore, when peer review workshops are focused on writers' ideas rather than writers' mechanics, students—with varying writing abilities and knowledge—can participate and provide quality feedback.

The peer review workshop is not a perfect tool; results from this study indicate that adopting a pedagogical strategy from one discipline can positively impact student learning in other disciplines. Future research may include tracking students' long-term writing proficiencies and growth to determine which pedagogical strategies best support student learning. This study could also serve as a model for other instructors to look for resources within their departments and colleges for use within their classrooms, thus promoting professional collaboration across disciplines. Finally, future research may include exploring other discipline-specific techniques and strategies regarding their ability to transcend discipline lines and promote student achievement.

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ERINN BENTLEY is Assistant Professor of English Education at Columbus State University. Her research interests focus on instructional strategies to improve student writing and utilizing technological tools, such as wikis and blogs, within classroom.

JENNIFER L. BROWN is Assistant Professor of Educational Foundations at Columbus State University. Her primary research interests include undergraduate retention and effective instructional strategies.

Appendix
Developing "Tracing One's Roots": Peer Review Form

Author's Name: _____   Reviewer's Name: _____

Directions:

1. Review these questions before reading the draft.
2. Read the entire draft before responding to any questions.
3. Respond to each question in writing with the purpose of assisting the author clarify the ideas presented in the Tracing One's Roots Paper.
4. Rate the different criteria based on expectations listed in the evaluation rubric.
5. Return your completed form to the author and discuss the draft and your feedback.

STRUCTURE AND MECHANICS OF THE PAPER

1. Does the title capture your interest? Does it fit the ideas expressed in the paper? Explain.

2. Does it have an interesting opening that relates to the title/theme and engages the reader? Explain.

3. Does each paragraph build on the one before and transition to the next? Explain.

4. Does the paper have a conclusion that relates to the title/theme and brings closure? Explain.

5. Does the author use effective communication conventions (e.g., punctuation, spelling, grammar)? Please identify areas of strength and possibilities for improvement.

6. Rate the structure and mechanics of the paper on a scale of 1 to 5, with 5 being the highest.

                        1   2   3   4   5

IDEAS EXPRESSED

7. Who was interviewed for this paper? How do you know who was interviewed?

8. What meaning do you make of the author's discussion of the many "cultures" to which he or she belongs and the significance in which they play in his or her daily life? Is it consistent with the other ideas expressed?

9. Rate the discussion of cultures and their significance on a scale of 1 to 5, with 5 being the highest.

$$1 \qquad 2 \qquad 3 \qquad 4 \qquad 5$$

10. What meaning do you make of the author's discussion of his or her family structure, customs, and/or traditions and how they impact his or her values, beliefs, and behaviors? Is it consistent with the other ideas expressed?

11. Rate the discussion of family and its impact on a scale of 1 to 5, with 5 being the highest.

$$1 \qquad 2 \qquad 3 \qquad 4 \qquad 5$$

12. Are there ideas within the paper that need further development? Do you have any suggestions that might help the author better communicate his/her ideas?

IMPACT

13. What did you like best about the paper?

14. What makes this paper distinctive and memorable?