

Using Online Studio Groups to Improve Writing Competency: A Case Study in a Quality Improvement Methods Course

Running Head: Impact of Online Writing Studios

Jamison V. Kovach*
Department of Information and Logistics Technology
College of Technology, University of Houston
312 Technology Building
Houston, Texas 77204, U.S.A.
Email: jvkovach@uh.edu

Michelle Miley
Writing Center
University of Houston
217 Agnes Arnold Hall
Houston, Texas 77204-3059, U.S.A.
Email: mmiley@uh.edu

Miguel Ramos
College of Technology, University of Houston
300 Technology Building
Houston, TX 77204, U.S.A
Email: maramos3@central.uh.edu

*Corresponding author.

ABSTRACT

Communication skills are a significant contributor to an individual's success in the workplace. Unfortunately, students often have trouble expressing their ideas in written form and the poor quality of students' written work often impedes the learning process. This case study investigates the use of online writing studios within a quality improvement methods course and the impact of this intervention on students' writing competency and perceptions about the writing process. The impact of this approach on student performance is evaluated within and across semesters using comparative statistical analyses. Results show that students who participated in online writing studios performed better (i.e., one rubric level higher) on their final written assignments for the course compared to students who did not, and that this approach is associated with improved students' perceptions about the writing process. Hence, this research suggests that, although challenging to dramatically improve students' writing competency over the course of one semester, the use of online writing studios within a content-specific course can positively affect the learning of communication skills and change students' perceptions about various aspects of the writing process.

Subject Areas: Quality improvement methods, online writing studios, writing in the disciplines, online collaboration, rubrics

Biography: Jamison V. Kovach is an Assistant Professor at the University of Houston. She received her Ph.D. in Industrial Engineering from Clemson University. She is certified in Six Sigma Black Belt training, and she serves as the Director of the Six Sigma program for the University of Houston. Her industrial experience includes more than five years as a process engineer in the U.S. textile industry, and her research interests include robust/experimental design and the application of quality improvement methods for organizational problem solving. She regularly presents her research at DSI, POMS, IIE, and ASQ annual conferences, and her work related to curriculum enhancements has recently been published in *ASQ Higher Education Brief*, *Business Education FORUM*, and *Quality Approaches in Higher Education*. In addition, Dr. Kovach has received grant funding to support her educational related research from the Delta Pi Epsilon Research Foundation and the University of Houston's Faculty Development Initiative Program.

Michelle Miley is the Assistant Director of Writing in the Disciplines at the University of Houston Writing Center, and is currently working on a Ph.D. at the University of Houston in Rhetoric, Composition, and Pedagogy. Her research interests include the use of small, writing-based collaborative groups working on writing assignments within non-writing courses. As a part of that interest, she has developed face-to-face and online writing group models within several courses across multiple disciplines, including those in hotel and restaurant management, human development and family studies, biology, art history, and technology.

Miguel A. Ramos is the Assistant Dean for Assessment and Accreditation in the College of Technology at the University of Houston. He earned a Ph.D. in Educational Research, Measurement, and Evaluation from Boston College in 2004. Dr. Ramos has worked as Program Evaluator for Boston Connects, a school-community-university partnership designed to address non-academic barriers to school success via a web of coordinated health and social service resources in ten urban public elementary schools. He has also worked as a researcher for the Southwest Educational Development Laboratory evaluating the effectiveness of a program model for improving student academic performance by enhancing systemic coordination of academic resources.

INTRODUCTION

Effective communication skills are a “must have” in today’s business world (Bates, 2009). Whether someone is selling, managing, or developing products/services, they must have the ability to communicate with others productively face-to-face, via phone, or through emails, memos, and/or reports (Divoky & Rothermel, 2009; B. Stevens, 2005). In addition, while a person’s technical skills may be responsible for getting them hired, it is their communication skills that determine whether they will be promoted (Hildebrandt, William, Murphy, & O’Neill, 1990; The National Commission on Writing, 2004; Zorn & Violanti, 1996). Hence, communication skills, including both oral and written are a significant contributor to an individual’s success in the workplace.

The importance of communication skills is clearly evident in studies completed in the business world (Porter, Lorsch, & Nohria, 2004). The U.S. Department of Labor’s study of competencies that workers need to be successful in the workplace indicated that communication is an important basic skill (U.S. Department of Labor, 1991). A subsequent survey of Gulf Coast area employers showed that oral communication skills, problem solving, and self-motivation were the three most valued workplace competencies (Maes, Weldy, & Icenogle, 1997). In addition, North and Worth’s (2004) longitudinal study of classified ads for entry-level jobs found that basic skills related to communication (i.e., reading, writing, listening, and speaking) are important in the workplace. Yet, a study of Silicon Valley employers revealed their dissatisfaction with the overall communication skills of new hires and their desire for college graduates with stronger oral and written communication skills (B. Stevens, 2005). In addition, Pfeffer and Fong’s (2002) review of the value of management education indicates that it is not very effective in preparing students for management practice, and far too often it is found that

“[c]ollege graduates...are technically competent, but they lack the ability to communicate...”
(Berlin, 2003, p. 51)

Because the workplace of the 21st century places high demands on employees' communication skills, it is essential that educators align their programs with the needs of employers, especially in terms of competencies related to both technical and communication aspects of the job (B. Stevens, 2005). The importance of communication skills is further reinforced by their inclusion in academic accreditation standards. For example, the Association to Advance Collegiate Schools of Business (AACSB) includes communication skills in the core learning goals for students' general knowledge (AACSB, 2010). Furthermore, the accreditation standards for the Association of Technology, Management, and Applied Engineering (ATMAE) highlights the need to provide students with a thorough grounding in effective communication skills (ATMAE, 2009). In the past, there may have been some misalignment between academia and industry regarding the required skill set of new graduates (Gabric & McFadden, 2001; Levenburg, 1996; Tanyel, Mitchell, & McAlum, 1999). More recently, however, instilling graduates with the necessary abilities has become an important outcome of many academic programs.

To address this issue, students are often required to take a communications course as part of their degree program. Other programs have taken this idea a step further by implementing courses that are designed to develop these and other practical business skills. For example, the College of Business and Economics at Towson University developed a required, junior-level, “Business Cornerstone” course to teach workplace competencies, such as writing, presentation, teamwork, thinking, problem solving, cultural diversity, and business etiquette skills through interactive exercises and activities (Holter & Kopka, 2001). The management faculty at Eastern

Kentucky University also created a senior-level, elective course on “Management in Practice” that teaches human resource management, total quality management, business-to-business e-commerce, communications, strategic planning, international management, and ethics through a series of guest lecturers (Brewer, Friel, Davig, & Spain, 2002). In other instances, some programs have integrated communication skills, such as writing, into other courses. In some cases, this change to the program has led to eliminating the requirement that students take an additional course in communications (Prater & Rhee, 2003). Successful integration of communication skills within other courses, however, can be difficult when the course is taught by someone who has not had training or experience in teaching communication skills. Wharton (2002) suggests that while faculty may perceive that students’ communication skills need to be improved, they often lack the specific knowledge or commitment to help students do so at the course level and beyond. For example, teaching writing within a specific content-based course requires subject matter knowledge as well as knowledge of the discourse community, writing process, rhetoric, and genre (Beaufort, 2007).

This study investigates the impact that one course-level intervention has on students’ written communication skills and their perceptions about the writing process. The justification for focusing specifically on writing competency in this study is multi-layered. The first tier involves the industry level. A recent survey indicates that a majority of Americans believe that good writing skills are important, especially in terms of career success (The National Writing Project, 2007). Given the focus on email and other forms of electronic/online communication in the workplace today, it is essential that employees can communicate with others in writing clearly and concisely (B. Stevens, 2005). As a result of the importance of written communication skills in industry, business school department chairs often cite writing competency as the most

important skill taught in business communication courses (Wardrope, 2002). At the classroom level, instructors often complain about the poor quality of students' written work and cite students' written communication skills as a barrier to identifying whether students understand the course material (Rieber, 2006). In fact, it is often reported that students' writing is superficial, and "even the 'better' responses show little evidence of well-developed problem-solving strategies or critical thinking skills" (Langer & Applebee, 1987, p. 4). And yet reports by the National Commission on Writing (2003, 2006) have concluded that writing skills are often neglected in our schools. This may in part be due to growing class sizes, the lack of rigorous assignments, and/or the disciplinary instructor's lack of knowledge about teaching written communication skills (Arum & Roksa, 2011). Hence, the importance of writing competency in the business world and its impact on the teaching-learning process establishes the need for research about effective teaching methods that lead to improved writing competency.

This research examines whether students' written communication skills and their perceptions about the writing process improve over the course of a semester in a course that incorporates a writing studio methodology. The writing studio method employs the use of small writing groups (five to seven students) who meet regularly throughout the semester to discuss writing assignments that the students are completing for their larger course. The students in studio groups, therefore, regularly receive feedback about their writing from peers. In addition, in this model, the studios are guided by a writing facilitator (Grego & Thompson, 2007). For this study, the writing facilitator is an undergraduate writing consultant (peer tutor) from the campus writing center. The facilitator thus understands discourse communities and has both writing and rhetorical knowledge and has been trained in facilitating studio groups. In the course included in this study, the writing studio groups meet virtually through online discussion boards (i.e., online

writing studios). In this research, we explore whether there is a difference in student performance on written assignments and in students' self-perceptions about writing when students participate in online writing studios versus when they do not.

The next section provides background information about the course in which this research was conducted and describes the nature of the course-level intervention that was used in conjunction with the written assignments for this course. We then discuss our hypotheses and describe the methods used in this study to test these hypotheses. The subsequent section presents the findings of this research, which is followed by a discussion of our results. The final section includes a discussion regarding the limitations of the study and an agenda for future research.

BACKGROUND

Coursework

This research was conducted in a senior-level, undergraduate quality improvement methods course that is taught at a leading public research university in a major metropolitan city. This course is delivered to students through a hybrid/blended learning model, which means that half of their instruction is provided face-to-face through regular class sessions and the other half is delivered online through instructional technology available through a course management system (Lim, Morris, & Kupritz, 2007; Weber & Lennon, 2007). Through readings, lectures, hands-on activities, and homework assignments, students enrolled in this course learn about various quality improvement tools/methods, such as flowcharts, histograms, cause-and-effect diagrams, etc. (Evans and Lindsay, 2005; Tague, 2005), as well as how to apply these techniques to solve real-world problems. Written homework assignments due periodically throughout the semester are used as a means to evaluate students' understanding of the tools/methods taught and their ability to apply those techniques to solve problems.

Given that students who typically enroll in this class have a high level of prior and current work experience, they are asked to identify a problem currently faced in their workplace that directly relates to their job functions. This problem is used as the subject of students' homework assignments throughout the semester. Examples of problems investigated previously in this course include improving the insurance billing process for a human resources department and reducing the occurrence of patient no-shows for a doctor's office. Students that are not currently employed are asked to recall a problem they were faced with in a previous position or a problem that currently exists in their everyday life (e.g., why doesn't my car get better gas mileage?).

For homework, students investigate the problem they have identified through the application of the quality improvement techniques taught in class. These assignments are designed to build on one another; therefore, as new tools/methods are introduced throughout the semester, students summarize their investigations in brief technical reports (i.e., 2-3 pages). These reports describe the problem being investigated as well as the purpose of the quality improvement techniques used. This assignment also requires students to summarize the main results of their investigation and include the tools used (i.e., flowcharts, histograms, cause-and-effect diagrams, etc.) as appendices attached to their report (which are not included in the page count for this assignment). The instructor specifically designed this assignment to include a written report to provide students with an opportunity to practice articulating their ideas in written form, which is an important workplace skill.

A rubric is used to grade each report based on a predetermined set of criteria, which is provided to students as part of the instructions for the homework assignment. The use of a rubric facilitates the grading process in terms of providing timely and meaningful feedback to students

about their performance (D. D. Stevens & Levi, 2005). Graded reports are typically returned to students within one week of the original due date, and this feedback includes detailed comments about any deficiencies related to the criteria specified in the rubric. Through the assessment of these assignments over several semesters, the course instructor recognized that students' written communication skills made it extremely difficult to identify whether students understood the course material. To address this problem, the instructor sought assistance from the campus writing center.

Online writing studios

The university in which the course that is the subject of this research is offered is predominately a commuter campus comprised of mainly nontraditional students who work full- or part-time; hence, participation in organized activities outside of class is often limited for many students. To address students' scheduling constraints and assist with improving their written communication skills, a comprehensive and flexible model of support was developed in conjunction with the campus writing center for use within the quality improvement methods course.

The Writing Studio Model, developed after Grego and Thompson's model, involves the use of peer writing groups made up of five to seven students enrolled in a course (Grego & Thompson, 2007). Typically, the studios engage students in the writing process through student-led writing groups that meet face-to-face regularly throughout a semester to discuss each student's writing. In these meetings, a facilitator from the campus writing center guides the interaction between group members, which encourages students to 1) become active participants in their own writing process, 2) develop an understanding of and ability to provide useful

feedback to their peers throughout the writing process, and 3) obtain ideas regarding how to effectively revise their own written assignments based on the feedback they receive from others.

The step-by-step approach used in traditional writing studio groups is depicted in Figure

1. Regularly throughout a semester, students submit drafts of their written assignments to the group. Students within the group review each other's work and provide feedback to one another through face-to-face discussions. Writing facilitators also provide students with feedback about their writing during group meetings. These groups are intended to build a community that supports the creation of a "third space" for collaboration that is separate from students' individual writing spaces and the evaluative space of the classroom (Grego & Thompson, 2007).

The studio, then, differs from the formative evaluation technique known as peer review sometimes used in business and management educational programs (Marcoulides & Simkin, 1991; Rieber, 2006; Topping, 1998) in that there are multiple students in the group, thereby providing multiple responses to the papers, and the group members, while offering their response to writing, do not make a judgment with a grade. It also differs from the writing groups like those of Bruffee (1984) in that the online studios take the students through the process of writing. Students can consider the studio a "safe space" to work through their ideas as well as develop their written communication skills. By engaging students in the social and collaborative processes of writing with their peers, students create a place where the individual and the social interact to produce meaningful work.

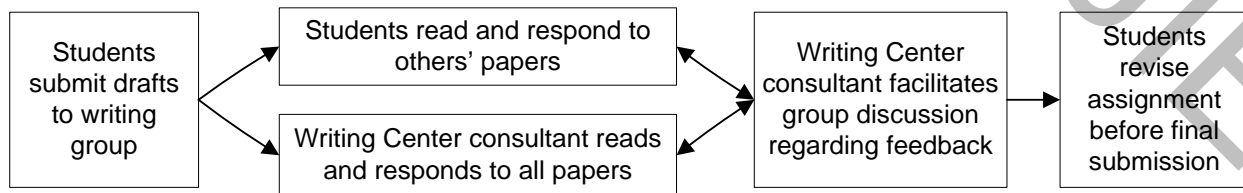


Figure 1 General steps involved in the writing studio model (specific to the university/course in which this research was conducted)

In the traditional writing studio model at the university where this research was completed, the face-to-face writing studio model provides a comprehensive level of support for written assignments; however, it does not address the scheduling constraints of the student population considered in this research. To address students' need for a flexible approach for improving their written communication skills, the face-to-face studio model was revised and integrated into an online environment. The "online" model specifically considers how to build a community and support collaboration in an online forum without face-to-face contact. Hence, online writing studios use discussion boards hosted within the course management system to facilitate students' participation in writing studio groups. As part of the online portion of the hybrid/blended quality improvement methods course considered in this study, students in these online groups were required to post drafts of their written homework assignments to the discussion boards periodically throughout the semester. Students within each group then reviewed each other's work and provided feedback to one another through discussion board posts. Facilitators from the campus writing center also used discussion board posts to provide students with feedback about their writing.

Warnock (2010) notes that the online forum provides a conducive space for the studio method. To begin the discussion, however, the facilitators must rely on a discussion board prompt. The discussion prompt that facilitators used to initiate each round of feedback within the online writing studios were an essential part of involving students in their own writing process. Prompts included open-ended points of discussion to keep students engaged in dialogue about the writing process. Facilitators began each round of feedback with an introductory post and then frequently visited the discussion boards to prompt further conversation with additional questions. The intent was that by asking questions, students would not simply post and move on, but rather

they would actively participate in the online forum. Prompts specifically asked questions that not only pointed students back to the purpose of their writing (i.e., the assignment) and the problems they were solving, but also challenged students to put themselves in the position of their audience. Acting as what Halasek (1999) would call the “immediate audience,” one that serves a generative as well as evaluative function, for their peers’ work provided students with the opportunity to develop a better understanding of the audience’s perceptions of their own work.

In addition to obtaining feedback about how to improve their performance on written assignments, online writing studios also served as a forum for teaching students how to give effective feedback in written form. The ability to give effective feedback is another skill that is useful in the business world. For example, it is useful in the field of quality management in terms of auditing (i.e., reviewing/checking) the quality of the work that others perform and summarizing the findings of such an evaluation in a report that describes how organizational practices need to be improved (ISO, 2010). Hence, the use of online writing studios had an additional benefit for students in the quality improvement methods course that connected well with the course topic.

RESEARCH OBJECTIVES

The purpose of this study is to examine the potential impact of online writing studios on students’ written communication skills and their perceptions about the writing process. This research will test the following hypotheses:

Hypothesis 1: The use of online writing studios is associated with improved student performance on written assignments.

Hypothesis 2: The use of online writing studios is associated with improved students’ perceptions about the writing process.

Specifically, the impact of online writing studios is evaluated both within and across semesters.

METHODOLOGY

Research protocols

The online writing studio model was implemented in the quality improvement methods course in fall 2009. In this class, there were five online writing studio groups that each consisted of four students. During the course of the semester, students were required to complete three written homework assignments. Students were given approximately one week to develop drafts of each assignment and were instructed to post their drafts to the discussion boards. In addition, students were encouraged to post a brief paragraph summarizing what they struggled with the most in the assignment.

Only those students who were assigned to a particular studio group could access the discussion board for that group. As shown in Figure 2, each student was required to review and give feedback about the work posted by the three other students in their group. Students were specifically instructed to:

1. Read closely what their peers had posted to the discussion board (i.e., drafts of assignments and paragraphs about challenges).
2. Summarize their reply in a brief paragraph that begins by responding to what their peers said they were struggling with and then provides additional feedback about their peers' work.
3. Post their reply as a response to the original post in the discussion board.
4. Attach the draft with comments to their reply, if they made comments in the margins of their peers' draft (e.g., using track changes in Microsoft Word, etc.).

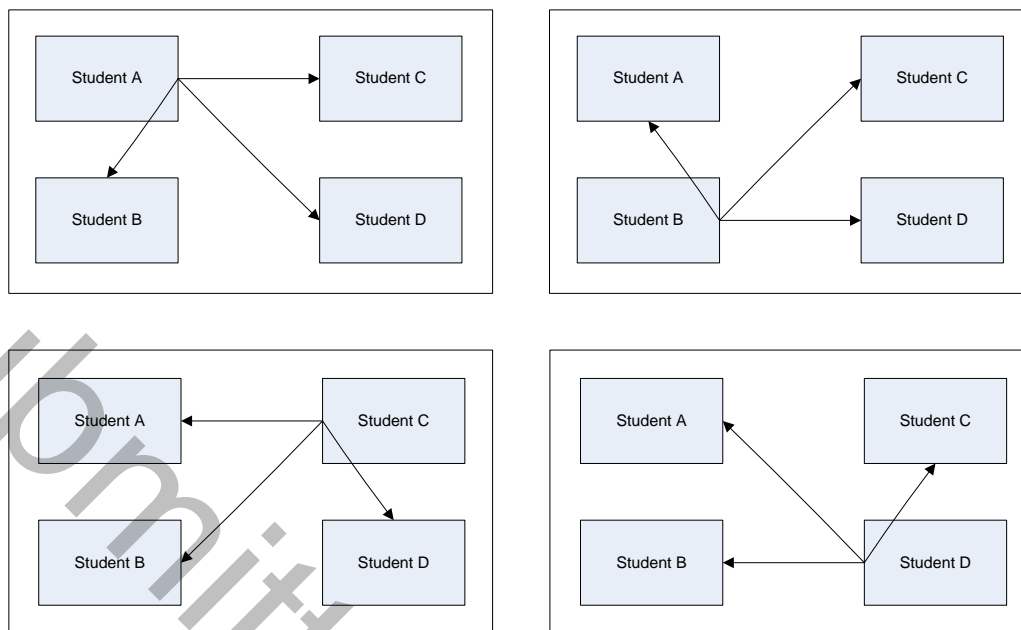


Figure 2 Flow of feedback between online studio group members

Similar written homework assignments were given in this course for fall 2008; however, students enrolled in the course at that time did not participate in online writing studios as part of their online coursework.

Participant population

The students who participated in this research were enrolled in the quality improvement methods course in the fall semester of 2008 ($n = 20$) and 2009 ($n = 20$) respectively. These senior-level, undergraduate students were predominately from the U.S. and had training in basic math and communication skills, which are prerequisites for the course. The majority of students were working full- or part-time while enrolled in this course; therefore, they were an ideal group for testing a course-level intervention that focused on written homework assignments in which students were required to apply quality improvement tools/methods to solve real-world problems.

Unfortunately, all students included in this study did not complete all written homework assignments for the course and/or all surveys related to this study. This meant there were cases with incomplete or missing data. Researchers felt they could better assess the impact of online writing studios on student performance and students' perceptions about the writing process if they removed cases with incomplete data from the study. Hence, the number of students in each group considered in subsequent comparative analyses varies depending on the degree of missing data. For clarity, the sample size considered in each group is specified for each analysis performed as part of this research.

Data collection

Throughout the semester in which students participated in online writing studios (i.e., fall 2009), both the draft and final versions of students' written homework assignments were collected. In addition, students' perceptions about the writing process were obtained through a pre-post survey that was administered to students by the instructor as part of the regular course evaluation process. This survey contained both quantitative (e.g., Likert items) and qualitative components (e.g., comments). See Appendix A for an excerpt of the survey used in this research. Equivalent data for fall 2008 (i.e., the semester in which students did not participate in online writing studios) were collected for comparison purposes. It is important to note that only a post-survey was administered to students for this particular semester.

Data analysis

This study evaluates the relationship between student participation in online writing studios, student performance on written assignments, and students' perceptions of the writing process. To assess student performance, the researchers developed a holistic rubric (see Appendix B), which was based on the rubric used in the course. This rubric consisted of a 5-

point scale that assessed both content knowledge and writing competency simultaneously. Using this rubric, two raters – one with expertise in the course content and the other with expertise in written communication – analyzed the collection of students’ written assignments. Independent raters were used in this analysis; researchers were not raters. The students’ written assignments were coded so that the raters would not know whether an assignment was a draft or a final version or which assignments belonged to particular students. The raters reviewed the papers together and came to a consensus about the assessment score for each paper. The data collected in this study from the assessment of students’ written assignments and student surveys were summarized through descriptive statistics, and the hypotheses were tested using t-tests and chi-squared analysis. The findings of this study are reported in the next section.

RESULTS

Table 1 summarizes the comparisons of mean scores on students’ written homework assignments for the semester in which assignments were supported by online writing studios (i.e., fall 2009; $n = 17$) versus when they were not (i.e., fall 2008; $n = 11$). The mean scores reflect a five point scale where a rating of “weak” is signified by a score of 1 while a rating of “excellent” is equivalent to a score of 5. Table 1 indicates there was no evidence of a significant difference in aggregate performance on written assignment 1 (p -value = 0.554) or assignment 2 (p -value = 0.252). There was, however, a significant difference in aggregate performance on the final written assignment (p -value = 0.044).

Table 1 Student performance on written assignments for the semesters included in this study

Assignment	Writing Studios Not Implemented (Fall 2008) ($n = 11$)		Writing Studios Implemented (Fall 2009) ($n = 17$)		t -value	p -value
	Mean	SD	Mean	SD		
1	1.73	0.65	1.59	0.51	-0.603	0.554
2	1.91	0.70	1.59	0.71	-1.176	0.252
3	1.64	0.81	2.29	0.77	2.139	0.044*

* Significant at the 0.05 level; Note: Equal variances not assumed

The researchers also examined changes in student performance throughout a single semester in terms of performance levels as defined by the assessment rubric. Figure 3 depicts student performance on the final draft of three written homework assignments that each required a draft and a final version for fall 2008 (i.e., the semester in which students did not participate in online writing studios). This figure suggests that over the course of the semester, the proportion of student performance rated “needs improvement” decreased, while the proportion of student performance rated “basic” and “weak” increased. The increase in the “weak” category illustrates the relatively sharp drop in mean performance shown in Table 1.

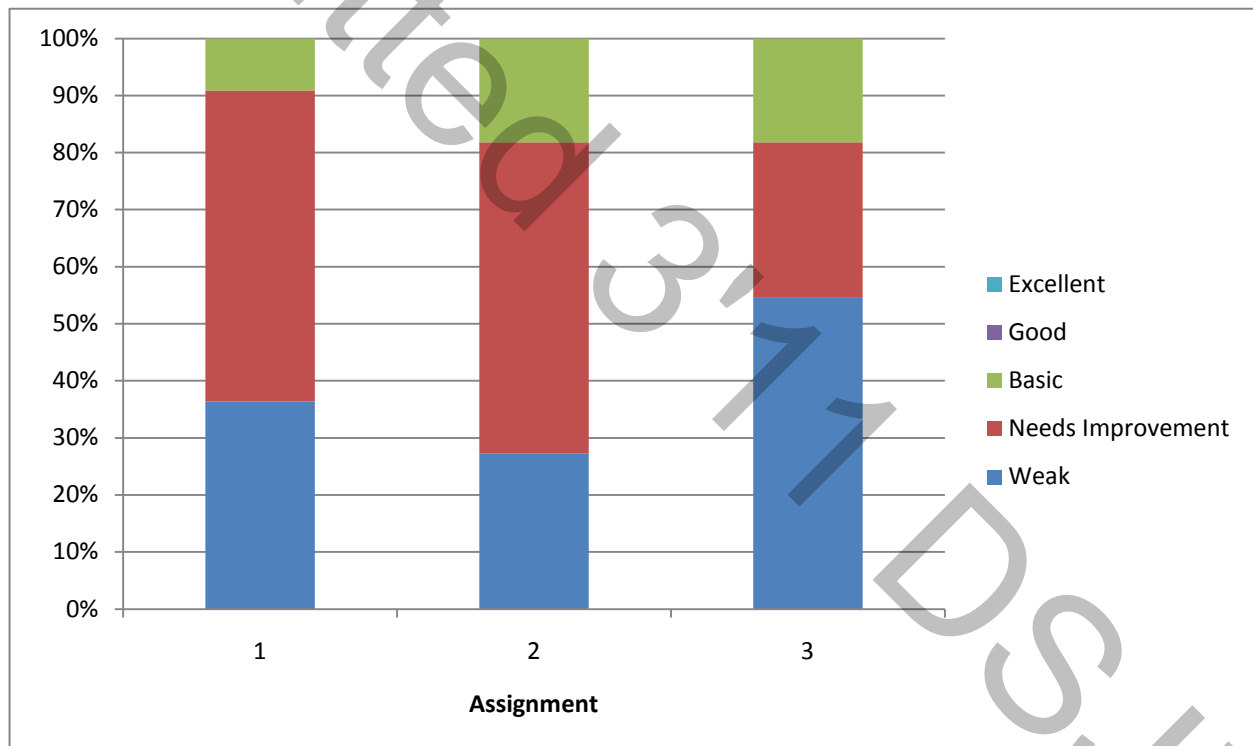


Figure 3 Student performance on written assignments for fall 2008 (i.e., the semester in which students did not participate in online writing studios) by performance categories

Chi-square analysis of proportional changes in student performance for fall 2008 (Figure 3) indicates a lack of statistically significant differences across the three assessment points – 1) from assignment 1 to 2 (p -value = 0.368), 2) from assignment 2 to 3 (p -value = 0.788), and 3)

from assignment 1 to 3 (p -value = 0.420). Tables 2-4 summarize comparisons of student performance across the three assignments. In each case, while there are observable changes in performance between assignments, the differences are not indicative of a statistically significant pattern.

Table 2 Comparison of student performance from assignment 1 to 2 using performance categories for fall 2008

Assignment	Counts	Performance Categories* ($n = 11$)			χ^2 -value	p -value
		Weak	Needs Improvement	Basic		
1	Count	6.0	3.0	2.0	2.0	0.368
	Expected Count	4.5	4.5	2.0		
2	Count	3.0	6.0	2.0		
	Expected Count	4.5	4.5	2.0		

* No student performed at the “good” or “excellent” level

Table 3 Comparison of student performance from assignment 2 to 3 using performance categories for fall 2008

Assignment	Counts	Performance Categories* ($n = 11$)			χ^2 -value	p -value
		Weak	Needs Improvement	Basic		
2	Count	3.0	6.0	2.0	0.476	0.788
	Expected Count	3.5	6.0	1.5		
3	Count	4.0	6.0	1.0		
	Expected Count	3.5	6.0	1.5		

* No student performed at the “good” or “excellent” level

Table 4 Comparison of student performance from assignment 1 to 3 using performance categories for fall 2008

Assignment	Counts	Performance Categories* ($n = 11$)			χ^2 -value	p -value
		Weak	Needs Improvement	Basic		
1	Count	6.0	3.0	2.0	1.733	0.420
	Expected Count	5.0	4.5	1.5		
3	Count	4.0	6.0	1.0		
	Expected Count	5.0	4.5	1.5		

* No student performed at the “good” or “excellent” level

Figure 4 illustrates an examination of student performance on written assignments when online writing studios were used in the course in fall 2009. This figure indicates that over the course of the semester, the proportion of student performance rated “weak” decreased while the

proportion of student performance rated “basic” or “good” increased. The increased proportion of “basic” or “good” ratings for student performance for the final assignment supports the mean difference depicted in Table 1.

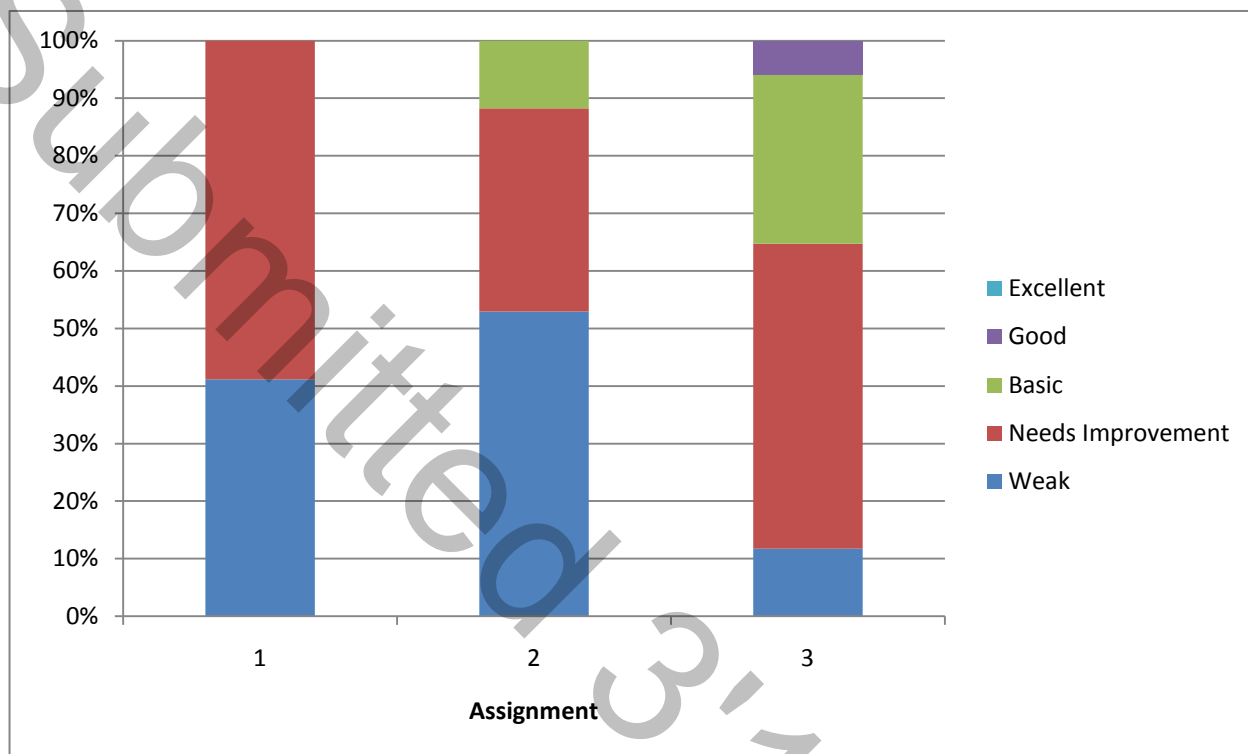


Figure 4 Student performance on written assignments for fall 2009 (i.e., the semester in which students participated in online writing studios) by performance categories

Chi-square analysis was used to examine proportional changes in student performance for fall 2009 (Figure 4) across the three assessment points (e.g., assignments 1, 2, and 3), similar to the analysis of fall 2008 data shown previously. Tables 5-7 summarize comparisons of student performance across the three assignments. While comparisons between assignments 1 and 2 (p -value = 0.197) and assignments 2 and 3 (p -value = 0.062) did not reveal significant differences in performance, changes in student performance from the first assignment to the last (Table 7) were significant (p -value = 0.032). In other words, there is some evidence of improvement in terms of academic performance as measured by the assessment of the assignments over the

course of the semester in which online writing studios were used to support students' written assignments.

Table 5 Comparison of student performance from assignment 1 to 2 using performance categories for fall 2009

Assignment	Counts	Performance Categories* (<i>n</i> = 17)			χ^2 -value	<i>p</i> -value
		Weak	Needs Improvement	Basic		
1	Count	7.0	10.0	0.0	3.250	0.197
	Expected Count	8.0	8.0	1.0		
2	Count	9.0	6.0	2.0		
	Expected Count	8.0	8.0	1.0		

* No student performed at the "good" or "excellent" level

Table 6 Comparison of student performance from assignment 2 to 3 using performance categories for fall 2009

Assignment	Counts	Performance Categories* (<i>n</i> = 17)				χ^2 -value	<i>p</i> -value
		Weak	Needs Improvement	Basic	Good		
2	Count	9.0	6.0	2.0	0.0	7.340	0.062
	Expected Count	5.5	7.5	3.5	0.5		
3	Count	2.0	9.0	5.0	1.0		
	Expected Count	5.5	7.5	3.5	1.0		

* No student performed at the "excellent" level

Table 7 Comparison of student performance from assignment 1 to 3 using performance categories for fall 2009

Assignment	Counts	Performance Categories* (<i>n</i> = 17)				χ^2 -value	<i>p</i> -value
		Weak	Needs Improvement	Basic	Good		
1	Count	7.0	10.0	0.0	0.0	8.830	0.032
	Expected Count	4.5	9.5	2.5	0.5		
3	Count	2.0	9.0	5.0	1.0		
	Expected Count	4.5	9.5	2.5	0.5		

* No student performed at the "excellent" level

Beyond academic performance, researchers also examined students' perceptions about their own writing skills as well as attitudes regarding the online writing studio process through a series of surveys administered in fall 2008 and fall 2009. Table 8 illustrates that students' self-perceptions regarding aspects of the writing process tended to be higher for students that participated in the online writing studios (*n* = 14) versus those who did not (*n* = 10). Significant

differences between semesters were found regarding students' confidence in their ability to write (p -value = 0.000), their competence as a writer (p -value = 0.000), and their tendency to revise written assignments prior to final submission (p -value = 0.000). However, there was no evidence of a significant difference in students' ratings of their willingness to ask others for feedback about their writing (p -value = 0.172) or how often they revise their papers before turning them in (p -value = 0.366).

Table 8 Students' perceptions of the writing process for the semesters included in this study

Survey Item	Rating Scale	Post-survey				t -value	p -value
		Fall 2008 ($n = 10$)		Fall 2009 ($n = 14$)			
		Avg.	SD	Avg.	SD		
I am <u>confident</u> in my ability to write academic papers.	5 = Strongly Agree 1 = Strongly Disagree	1.60	0.70	4.79	0.43	-12.811	0.000**
I am a <u>competent</u> writer.	5 = Strongly Agree 1 = Strongly Disagree	1.70	0.82	4.57	0.65	-9.191	0.000**
I ask others for <u>feedback</u> on my writing.	5 = Always 1 = Never	3.00	1.05	3.71	1.27	-1.503	0.147
I <u>revise</u> my papers before turning them in to the professor/instructor.	5 = Always 1 = Never	2.10	1.10	4.36	1.01	-5.128	0.000**
On average, how many times do you revise a paper before turning it in to a professor/instructor?	1 = 0 to 1 2 = 2 to 3 3 = 4 to 5 4 = 6+	1.70	.48	1.93	.73	-0.92	0.366

** Significant at the 0.01 level; Note: Equal variances not assumed

In addition, analysis of the results from pre- and post-semester surveys administered to students ($n = 14$) that participated in online writing studios (i.e., fall 2009) suggests that students' self-perception regarding aspects of the writing process tended to increase from the beginning to the end of the semester. As shown in Table 9, there were significant positive differences in students' ratings of their confidence in their ability to write (p -value = 0.000), their competence as writers (p -value = 0.000), and their tendency to revise written assignments prior to final

submission (p -value = 0.001). However, there was no evidence of significant differences in students' ratings of their willingness to ask others for feedback about their writing (p -value = 0.234) or in how often students revise their papers before turning them in (p -value = 0.671).

Table 9 Students' perceptions of the writing process for fall 2009 (i.e., the semester in which students participated in online writing studios)

Survey Item	Rating Scale	Pre-survey ($n = 14$)		Post-survey ($n = 14$)		t -value	p -value
		Avg.	SD	Avg.	SD		
I am <u>confident</u> in my ability to write academic papers.	5 = Strongly Agree 1 = Strongly Disagree	2.00	0.88	4.79	0.43	-9.918	0.000**
I am a <u>competent</u> writer.	5 = Strongly Agree 1 = Strongly Disagree	1.93	0.73	4.57	0.65	-8.134	0.000**
I ask others for <u>feedback</u> on my writing.	5 = Always 1 = Never	2.86	1.51	3.71	1.27	-1.249	0.234
I <u>revise</u> my papers before turning them in to the professor/instructor.	5 = Always 1 = Never	1.93	1.21	4.36	1.00	-4.569	0.001**
On average, how many times do you revise a paper before turning it in to a professor/instructor?	1 = 0 to 1 2 = 2 to 3 3 = 4 to 5 4 = 6+	1.86	0.66	1.93	0.73	-0.434	0.671

** Significant at the 0.01 level

Additional items included in the post-survey for fall 2009 further highlight students' perceptions of their writing experiences in the course. As illustrated in Table 10, students tended to rate different aspects of the writing experience very highly. The strongest overall agreement was in response to a statement about the use of feedback obtained through the online writing studios to revise their papers. Also encouraging in terms of utility was the general agreement that, if available, students would use the online writing studio process again.

Table 10 Students' perceptions of their experience with online writing studios for fall 2009 (i.e., the semester in which students participated in online writing studios)

Survey Item	Rating Scale	Post-survey (n = 14)	
		Avg.	SD
I used feedback provided through the online writing studios to revise my papers.	5 = Strongly Agree 1 = Strongly Disagree	4.67	0.49
Reading and responding to others' papers through the online writing studios led me to make changes in my paper.	5 = Strongly Agree 1 = Strongly Disagree	4.40	0.63
My online writing studio group has helped me become a better writer.	5 = Strongly Agree 1 = Strongly Disagree	4.07	0.96
My online writing studio group has helped me communicate my ideas more clearly.	5 = Strongly Agree 1 = Strongly Disagree	4.07	0.88
If available, I would use online writing studios again.	5 = Strongly Agree 1 = Strongly Disagree	4.27	0.80

DISCUSSION

Analysis of student performance and survey results paint a cautiously optimistic picture of the potential impact of online writing studios in a course setting. The comparison of mean performance between semesters shows that students who participated in online writing studios performed better (i.e., one rubric level higher) on their final written assignments than students who did not participate in online writing studios. Hence, this study suggests that the interaction within the online writing studios, which consisted mainly of student-student and student-facilitator dialogue throughout the semester, may have helped students develop a better understanding of the course content and improve their written communication skills. Because online writing studios provide an opportunity for students to discuss their struggles and uncertainties with others, students may become better able to identify the root cause of their lack of conceptual understanding of course content and/or their inability to articulate concepts they do understand in writing. The interaction within the online writing studio groups may also increase students' awareness of 1) the purpose of the assignment, 2) the genre in which they were required to write (i.e., technical reports), and 3) the role of the audience in the writing process. As students incorporate what they learn from these discussions into their written assignments,

their conceptual understanding of both the content of the course and the process of writing may improve. This new knowledge may have helped students improve their performance on written assignments in the course.

Progressive comparisons of mean performance on the three written homework assignments during fall 2009 (i.e., comparisons of aggregate scores from assignment 1 to 2 and from assignment 2 to 3) indicate a clear shift from lower ratings to higher ratings throughout the semester as illustrated by Figure 4. Analysis of the specific nature of these shifts from assignment 1 to assignment 3 suggests a statistically significant change in the distribution of student performance (see Table 7). In addition, comparisons between mean performance for students who participated in online writing studios (i.e., fall 2009) versus those who did not (i.e., fall 2008) did highlight both statistical and practical differences in performance. Because writing is a developmental process, and writing within a discipline is best learned by writing in various courses across the college career (Thaiss & Zawacki, 2006), it is not surprising that students' written communication skills did not dramatically improve in just one semester. These findings, therefore, suggest that interventions over a longer period of time (i.e., more than one semester) may be needed to significantly improve students' writing competency, although incremental change is possible in the short term.

In terms of students' self-perceptions regarding the writing process, significant differences were found both between semesters and within the semester in which online writing studios were used to support students' written assignments in the course. This result indicates that the process of drafting as well as giving and receiving feedback, which was used in the online writing studios, is associated with improved students' perceptions of their confidence in their ability to write, their competence as writers, and their tendency to revise written

assignments prior to final submission. While this research suggests that improvement in students' written communications skills over the course of just one semester may be incremental, it is possible to change their perceptions about various aspects of the writing process in a relatively short period of time. Previous research suggests that improved confidence about writing ability can positively impact writing competence (Pajares & Johnson, 1994). As such, even small successes help create a framework for long-term improvement.

CONCLUSION

This research investigated the impact that online writing studios have on students' written communication skills and their perceptions about the writing process. A thorough analysis of student data was conducted to assess the intervention by comparing two different semesters and examining the students' progress over the course of a single semester. The results of this study provide encouraging evidence that online writing studios are associated with improved student performance and enhanced perceptions about the writing process. In general, students provided with the opportunity to participate in online writing studios within their courses may become better able to clearly articulate their ideas in written form. Hence, their assignments will more effectively demonstrate the degree to which they have mastered the course content. This improvement in the quality of students' writing may make it easier for instructors to assess student learning performance and provide students with appropriate feedback and/or additional support to fully develop their understanding of the course content. In addition, enhanced writing competency will facilitate students' future success in the workplace.

The results obtained from this study, however, may not be generalizable to all instructional environments due to the limitations of this research. While online writing studios were examined in this study, there are more approaches to improve students' writing competency

that should be studied to determine their effect on student performance. In addition, our hypotheses were tested in just one course at a public research university. Further research is needed to confirm our findings for student populations in other classes and/or universities. This research also focused only on writing assignments for individual students. Given the current financial pressures faced by most academic institutions, however, course sizes are growing. Without additional resources to support increased enrollment, it is often necessary for instructors to give writing assignments for groups of students to complete together to reduce the time required for assessment/evaluation. Studies are needed to identify effective approaches for improving students' written communication skills for group writing assignments. Finally, the current study showed that interventions over more than one semester may be needed to significantly improve students' writing competency, as argued by Thaiss and Zawacki (2006). Further research is, therefore, needed to extend our current knowledge-base and examine the effects of various methods for improving students' written communication skills, especially online writing studios, over the course of multiple semesters.

ACKNOWLEDGEMENTS

This research was funded through an educational research grant from the Delta Pi Epsilon Research Foundation. The researchers would like to thank this foundation for their support of this research project.

Appendix A – Student Surveys

Pre-survey:

Instructions: Please answer the following questions regarding your writing skills/practices prior to using online writing studios.

1. Please indicate your level of agreement with the following statements. (5-pt strongly agree-strongly disagree scale provided)

I am confident in my ability to write academic papers.
I am a competent writer.

2. Please indicate how often you engage in the following activities when writing. (5-pt always-never scale provided)

I ask others for feedback on my writing.
I revise my papers before turning them into the professor/instructor.

3. Please indicate how often you engage in the following activity when writing.

On average, how many times do you revise a paper before turning it in to a professor/instructor? (select one)

0-1 times 2-3 times 4-5 times 6+ times

4. What is the role of writing in the way you try to solve a problem? (open-ended question)

Post-survey:

This survey included Questions 1-3 above and the questions listed below.

Instructions: Please answer the following questions regarding your writing skills/practices after participating in online writing studios.

1. Please indicate your level of participation in the online writing studios this semester. (5-pt always-never scale provided)

Posting drafts of my work.
Reading and responding to others' papers.

2. (Fall 2009 only) Please indicate your level of agreement with the following statements about online writing studios. (5-pt strongly agree-strongly disagree scale provided)

I used feedback provided through the online writing studios to revise my papers.
Reading and responding to others' papers through the online writing studios led me to make changes in my paper.

My online writing studio group has helped me to become a better writer.

My online writing studio group has helped me communicate my ideas more clearly.

If available, I would use online writing studios again.

Appendix B – Assessment Rubric

The following rubric describes the requirements to receive a score of “excellent” (5 pts.). The full rubric, i.e., descriptions of grading scales for “good” (4 pts.), “basic” (3 pts.), “needs improvement” (2 pts.), and “weak” (1 pt.), is available from the authors upon request.

<p>Excellent – 5 pts.</p> <p>Student demonstrates clear understanding of relevant content knowledge and the ability to apply that knowledge to real world situations. The specific details and insightfulness separate this from a good report.</p>	<ul style="list-style-type: none">• The report provides an accurate description of the quality improvement tools/method(s) selected and a clear description of how the tool will be applied to the process or problem.• The report provides a detailed description of the process or problem to be investigated. The details provided convey a student’s real-world experience/observations and demonstrate understanding about the process or problem.• The report clearly and accurately describes the analysis of the process or problem using the assigned tool/method AND the analysis is consistent with appropriate use of the tool/method (i.e., the analytic process described is what would be expected given the tool/method used). The summary is easy to understand and clearly describes the results of the analysis. A statement indicates the inclusion of an appendix for complete results.• The report makes a case for the usefulness of the tools/methods by laying out specific, logical reasons informed by the student’s observations and experiences either from their work on the assignment or their jobs.• The report describes how tools/methods create knowledge in terms of the methods of knowledge creation (e.g., socialization, internalization, etc.). The description uses the process/problem from the assignment or the student’s own work experience/observations to help illustrate how the tools/methods create knowledge. Specific descriptions of how tools/methods create knowledge are then attributed to the correct method of knowledge creation.• The writing facilitates reader understanding of the report content. The writing style clearly articulates the intended meaning while the organization contributes to the overall flow of the document. There are few if any awkwardly worded sentences and the reader is not distracted from content by spelling or grammatical errors.• The report follows the preferred format.
--	---

References

- AACSB. (2010). *Eligibility Procedures and Accreditation Standards for Business Accreditation*. Tampa, FL: AACSB International – The Association to Advance Collegiate Schools of Business.
- Arum, R., & Roksa, J. (2011). *Academically Adrift: Limited Learning on College Campuses*. Chicago: University of Chicago Press.
- ATMAE. (2009). *Accreditation Handbook*. Ann Arbor, MI: The Association of Technology, Management, and Applied Engineering.
- Bates, S. (2009). Communication is the key to motivation. *Employment Relations Today*, 36(2), 53-58.
- Beaufort, A. (2007). *College Writing and Beyond: A New Framework for University Writing Instruction*. Logan, UT: Utah State University Press.
- Berlin, J. (2003). *Rhetorics, poetics, and cultures: Refiguring college English studies*. West Lafayette, IN: Parlor Press.
- Brewer, P., Friel, T., Davig, W., & Spain, J. (2002). Quality in the Classroom. *Quality Progress*, 35(1), 67-71.
- Bruffee, K. (1984). Collaborative learning and the conversation of mankind. *College English*, 46(7), 635-652.
- Divoky, J. J., & Rothermel, M. A. (2009). Identification of Nonadaptive MBA Writers Through the Use of Linguistic Analysis. *Decision Sciences Journal of Innovative Education*, 7(1), 37-50.
- Gabric, D., & McFadden, K. (2001). Student and employer perceptions of desirable entry-level operations management skills. *Mid-American Journal of Business*, 16(1), 51-59.
- Grego, R., & Thompson, N. (2007). *Teaching/writing in thirdspaces: the studio approach*. Carbondale, IL: Southern Illinois University Press.
- Halasek, K. (1999). *A pedagogy of possibility: Bakhtinian perspectives on composition studies*. Carbondale, IL: Southern Illinois University Press.
- Hildebrandt, H. W., William, H., Murphy, H. A., & O'Neill, S. A. (1990). *Effective business communications*. New York: McGraw-Hill Ryerson.
- Holter, N. C., & Kopka, D. J. (2001). Developing a workplace skills course: Lessons learned. *The Journal of Education for Business*, 76(3), 138-143.

- ISO. (2010). ISO 9000 Essentials. Retrieved May 29, 2010, from http://www.iso.org/iso/iso_catalogue/management_standards/iso_9000_iso_14000/iso_9000_essentials.htm
- Langer, J. A., & Applebee, A. N. (1987). *How Writing Shapes Thinking: A Study of Teaching and Learning*. Urbana, IL: National Council of Teachers of English.
- Levenburg, N. M. (1996). General Management Skills: Do Practitioners and Academic Faculty Agree on Their Importance? *Journal of Education for Business*, 72(1), 47-51.
- Lim, D. H., Morris, M. L., & Kupritz, V. W. (2007). Online vs. blended learning: Differences in instructional outcomes and learner satisfaction. *Journal of Asynchronous Learning Networks*, 11(3), 27-42.
- Maes, J., Weldy, T., & Icenogle, M. (1997). A Managerial Perspective: Oral Communication Competency Is Most Important for Business Students in the Workplace. *The Journal of Business Communication*, 34(1), 67-79.
- Marcoulides, G. A., & Simkin, M. G. (1991). Evaluating student papers: The case for peer review. *Journal of Education for Business*, 67(2), 80-83.
- North, A. B., & Worth, W. E. (2004). Trends in Selected Entry-Level Technology, Interpersonal, and Basic Communication Scans Skills: 1992-2002. *Journal of Employment Counseling*, 41(2), 60-70.
- Pajares, F., & Johnson, M. J. (1994). Confidence and competence in writing: The role of self-efficacy, outcome expectancy, and apprehension. *Research in the Teaching of English*, 28(3), 313-331.
- Pfeffer, J., & Fong, C. T. (2002). The end of business schools? Less success than meets the eye. *Academy of Management Learning and Education*, 1(1), 78-95.
- Porter, M. E., Lorsch, J. W., & Nohria, N. (2004). Seven surprises for new CEOs. *Harvard Business Review*, 82(10), 62-72.
- Prater, E., & Rhee, H. S. (2003). The impact of coordination methods on the enhancement of business writing. *Decision Sciences Journal of Innovative Education*, 1(1), 57-71.
- Rieber, L. J. (2006). Using peer review to improve student writing in business courses. *The Journal of Education for Business*, 81(6), 322-326.
- Stevens, B. (2005). What Communication Skills Do Employers Want? Silicon Valley Recruiters Respond. *Journal of Employment Counseling*, 42(1), 2-9.
- Stevens, D. D., & Levi, A. J. (2005). *Introduction to rubrics: An assessment tool to save grading time, convey effective feedback, and promote student learning*. Sterling, VA: Stylus Publishing.

- Tanyel, F., Mitchell, M., & McAlum, H. (1999). The skill set for success of new business school graduates: Do prospective employers and university faculty agree? *The Journal of Education for Business*, 75(1), 33-37.
- Thaiss, C., & Zawacki, T. M. (2006). *Engaged Writers/Dynamic Disciplines: Research on the Academic Writing Life*. Portsmouth, NH: Boynton/Cook Publishers.
- The-National-Commission-on-Writing-in-America's-Schools-and-Colleges. (2003). *The Neglected "R": The Need for a Writing Revolution*. Retrieved February 7, 2011, from http://www.collegeboard.com/prod_downloads/writingcom/neglectedr.pdf
- The-National-Commission-on-Writing-in-America's-Schools-and-Colleges. (2004). *Writing: A Ticket to Work...or A Ticket Out*. Retrieved February 7, 2011, from http://www.collegeboard.com/prod_downloads/writingcom/writing-ticket-to-work.pdf
- The-National-Commission-on-Writing-in-America's-Schools-and-Colleges. (2006). *Writing and School Reform*. Retrieved February 7, 2011, from http://www.collegeboard.com/prod_downloads/writingcom/writing-school-reform-natl-comm-writing.pdf
- The-National-Writing-Project. (2007). *The 2007 Survey on Teaching Writing: American Public Opinion on the Importance of Writing in Schools*. Retrieved February 7, 2011, from http://www.nwp.org/cs/public/download/nwp_file/8856/NWP_2007_Survey_Report.pdf?x-r=pcfile_d
- Topping, K. (1998). Peer assessment between students in colleges and universities. *Review of Educational Research*, 68(3), 249.
- U.S.-Department-of-Labor. (1991). *What work requires of schools: A SCANS (Secretary's Commission on Achieving Necessary Skills) report for America 2000*. Washington, DC: U.S. Department of Labor.
- Wardrope, W. (2002). Department chairs' perceptions of the importance of business communication skills. *Business Communication Quarterly*, 65(4), 60-72.
- Warnock, S. (2010). *Teaching writing online: how and why*. Urbana, IL: NCTE.
- Weber, J. M., & Lennon, R. (2007). Multi-course comparison of traditional versus Web-based course delivery systems. *The Journal of Educators Online*, 4(2), 1-19.
- Wharton, G. (2002). Faculty Perceptions of Communication Skills and Needs of Business School Undergraduates in Singapore. *Business Communication Quarterly*, 65(4), 39-59.
- Zorn, T. E., & Violanti, M. T. (1996). Communication abilities and individual achievement in organizations. *Management Communication Quarterly*, 10(2), 139-167.