Tools for success: understanding the efficacy of technology in Iowa community college English composition instruction

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Tools for success: understanding the efficacy of technology in Iowa community college English composition instruction

by

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Donna Niday, Major Professor
Lulu Rodriguez
Ann Thompson

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>iv</td>
</tr>
<tr>
<td>CHAPTER 1  INTRODUCTION AND STATEMENT OF THE PROBLEM</td>
<td>1</td>
</tr>
<tr>
<td>CHAPTER 2  LITERATURE REVIEW</td>
<td>7</td>
</tr>
<tr>
<td>CHAPTER 3  METHODS</td>
<td>31</td>
</tr>
<tr>
<td>CHAPTER 4  RESULTS AND DISCUSSION</td>
<td>43</td>
</tr>
<tr>
<td>CHAPTER 5  CONCLUSIONS</td>
<td>75</td>
</tr>
<tr>
<td>WORKS CITED</td>
<td>84</td>
</tr>
<tr>
<td>APPENDIX A INFORMED CONSENT FORM: SURVEY</td>
<td>89</td>
</tr>
<tr>
<td>APPENDIX B SURVEY QUITIONNAIRE</td>
<td>91</td>
</tr>
<tr>
<td>APPENDIX C INFORMED CONSENT FORM: IN-DEPTH INTERVIEWS</td>
<td>96</td>
</tr>
<tr>
<td>APPENDIX D IN-DEPTH INTERVIEW QUESTIONNAIRE</td>
<td>97</td>
</tr>
<tr>
<td>APPENDIX E IRB EXEMPT LETTER</td>
<td>99</td>
</tr>
</tbody>
</table>
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ABSTRACT

This study examines the uses and perceived effectiveness of technology in Iowa community college English composition instruction. A survey of those who teach English composition in Iowa community colleges and in-depth interviews with four instructors were conducted. The results show that community college English instructors use a wide variety of technologies in instruction and agree that technology use assists students during the various steps of the composing process. Instructors also said that technology can have a positive effect on some elements of the finished product, but that higher order concepts, including thesis development and creativity, are not enhanced by technology use.

Instructors also were asked about their use of four specific technologies that the New Media Consortium’s *Horizon Report, 2012 Higher Education Edition*, suggests will come into widespread use in higher education instruction within the next three years. None of the four technologies the report identified (mobile apps, tablet computing, game-based learning, and learning analytics) were found to be commonly used for English instruction.
CHAPTER 1
INTRODUCTION AND STATEMENT OF THE PROBLEM

The New Media Consortium/Educause Horizon Report, 2012 Higher Education Edition predicts that within the next year mobile apps and tablet computing have the potential to make a significant impact on higher education. In fewer than three years, game-based learning and learning analytics will become powerful tools in post-secondary education as well, the report says. As smart cell phones and iPads become more and more powerful, combining social broadcasting and personal computing with more commonly used tools, such as Internet searches, it could mean that the inexpensive, mobile, hand-held devices will supplant expensive PCs in the classroom, the report predicts. Students may already be equipped with the hardware they need to fulfill this prediction. According to a June 2012 Pew Internet Foundation study, 67% of Americans ages 17-24 own a smartphone, up 18% from the previous year. According to Pew, tablet computer ownership jumped from 10% to nearly 20% between December 2011 and January 2012. Apple sold 50 million iPads in January 2012 alone. About 25% of adults 18-28 own a tablet computer, Pew says.

I have been teaching English and communications courses in a Midwestern community college since 1998. Fourteen years ago, the overhead projector was my technology of choice in the classroom; today I rely on electronic presentations to augment lectures, and on our learning management system (LMS) to deliver content, communicate with students, and record grades outside of class. Just a few
years ago, such extensive use of the learning management system would have caused my courses to be labeled hybrids (a combination of face-to-face and online instruction). Today, however, these courses are the new normal. I expect students to conduct the majority of their research and to compose electronically. I know that most possess technology skills far beyond my own, as evidenced by the multi-media projects they submit each semester. (Recently, an academic advisor at a research university gave a new-student orientation presentation via an overhead projector, ignoring the automated screen/PC/projector in the room. I was very surprised and wondered if the 18-year-olds packing the room were negatively impressed.) I personally own a smartphone, but use only one app for education purposes (an online survey tool to prompt class discussions or to do a quick comprehension check). I do not own a tablet computer, do not conduct many game-based learning activities, and I am not sure I thoroughly understand the term “learning analytics.” Is there more I could be or should be doing with these technologies? Do incoming community college students expect to do a significant amount of learning electronically? In 2010 the Public Broadcasting Service (PBS) found that 97% of K-12 teachers use digital media for classroom instruction. The report adds that the majority of these teachers felt strongly that digital resources, including online games and lesson plans, help them to be more effective. This is the environment from which my students will come.

It is no secret that higher education has struggled to rein in budgets with shrinking federal and state funding over the last several years. In 2009, community colleges educated over 6.5 million students—the single biggest sector nationwide,
serving over a third of all students - yet spent about $10,000 per full-time equivalent (FTE) student annually, an amount less than any other type of college or university (National Center for Education Statistics, 2011). At the same time, poor retention continues to plague two-year colleges. David Moltz, writing for Inside Higher Ed in 2011, says, “Studies have shown that students seeking either an associate degree or higher who start at a two-year institution have a lower chance of achieving their education goals than students who start at a four-year institution.” Nationally, fewer than half of community college students who initially plan to earn a four-year degree actually attain that goal in six years (U.S. Department of Education, 2011). If we in the community college system could effectively use technologies that students already own, or if we could use learning analytics to retain and promote more students, we had better incorporate these technologies in instruction soon. The focus and measure of success of educational technology is no longer a simple count of wires and computers, but a complicated measure of impact on student learning.

A good place to start might be the English/Communications classrooms because all degree-seeking students must complete coursework in this area. The National Council of the Teachers of English expects that “skills, approaches and attitudes toward media literacy, visual and aural rhetorics, and critical literacy should be taught in the English/Language Arts classrooms” (“Multi-Modal Literacies,” 2005). NCTE also says that “Writing instruction must accommodate the explosion of technology from the world around us” (“Beliefs about the Teaching of Writing,” 2004). The Conference on College Composition and Communication recognizes that “increasingly, classes and programs in writing require that students compose
digitally,” and “we can expect the variety of digital compositions to continue proliferating” (2004). At the same time, the CCC is not quite as enthusiastic about electronic writing assessments, preferring that essays be hand graded. “Because all writing is social, all writing should have human readers, regardless of the purpose of the writing,” says the CCC “Position Statement on Teaching, Learning and Assessing Writing in Digital Environments.” Published in 2004, that position has not been updated. On the other hand, a study at the University of Akron showed little difference in the accuracy and reliability of automated scoring versus hand scoring of college-level compositions (Robelen, 2012).

This dichotomy suggests that some of the New Media Consortium predictions might meet some resistance from educators. A recent chat on Inside Higher Ed’s “Technology and Learning” section demonstrated the divide: one educator claimed “elementary school students are learning basic skills seamlessly via video games,” while another lamented that the same technologies that engage students also distract them. (According to a June 2012 Pew Internet study, teens 14-17 send an average of 100 texts per day). A Wiley Online Library study in 2010 claims that college students who frequently use Twitter to engage with faculty and students earn a half-point higher GPA (Journal of Computer Assisted Learning).

So, does technology merely increase quantity or are student compositions showing evidence of improved quality? Do community college English teachers use, or plan to use in the near future, the technologies described in the New Media Consortium report? What other types of technology do community college English teachers use in their classrooms? What has resulted from their use? Can technology
help the writer create a more masterful composition? A survey of practices and outcomes in some Iowa community college classrooms will illustrate whether or not the latter is true. If the answer is yes, maybe teachers who have been reluctant to learn new technologies will embrace new methods. If the answer is yes, maybe inexpensive mobile technologies will help cash-strapped districts. If the answer is no, perhaps those hard-to-come-by dollars would be better spent elsewhere.

The next chapter will look at past research on the general effects of technology on teaching and learning, the effects of technology on English composition teaching and learning, how today’s traditional and non-traditional students engage with technology, and the characteristics of Iowa community colleges. They will also explore the four technologies (mobile apps, tablet computing, game-based learning, and learning analytics) that the Horizon Report, 2012 Higher Education Edition predicts will make a significant impact on education within one to three years. The research questions are:

RQ1. How do Iowa community college English instructors use technology for writing instruction and/or assessment?

RQ2. How do Iowa community college English instructors perceive the effectiveness of technology use in writing instruction and/or assessment?

RQ3. Which of the four technologies that the Horizon Report, 2012 Higher Education Edition suggests will become widely used in higher education instruction within one to five years (mobile apps, tablet computing, game-based learning, and learning analytics) do Iowa community college writing instructors currently have available and use in their classrooms?
Today’s college students have been dubbed “digital natives” and educators largely agree that students expect to be engaged by and instructed via electronic technologies. Computers, electronic projectors, and internet connectivity are prevalent in most classrooms. But just when educators think they have found the most effective uses for new technologies, another one comes along. Professors wonder if they should jump on the bandwagon or not. Five years ago, with Stanford University in the lead, experts predicted that all professors would soon be podcasting lectures. Not to be left behind, a year later my own community college gave all willing instructors a free iPod and instruction in podcasting. Course schedules denoted courses where lectures would be podcast in addition to face-to-face instruction. Did students choose podcast courses over others? Did students in podcast courses actually listen to the podcasts? The answer to both questions was “no.” Try as we might, universities and community colleges, alike, struggle to jump into a new technology at just the right time. We all want to be early adopters of technologies that will have the greatest impact on education, but who can predict which technologies will be most beneficial and thus widely adopted in the field?
Because technology is used frequently in higher education, college instructors need to fully understand its impact. This chapter provides a review of research findings regarding the use of technology in the classroom in general and in writing instruction in particular. The chapter also examines educational uses of the four emerging technologies cited as likely to make a significant impact on higher education instruction, according to the *Horizon Report, 2012 Higher Education Edition*.

The New Media Consortium describes itself as “an international body of experts in education and technology, and other fields” that, “drive innovation across their campuses. . .by performing research that catalyzes discussion, by convening people around new ideas, and by building communities that encourage exploration and experimentation” (New Media Consortium, 2012). As part of its mission, it examines emerging technologies for their potential impact on teaching and learning in higher education. In conjunction with EDUCAUSE, NMC has published the annual *Horizon Report* since 2002. More recent reports include both K-12 and higher education editions. Each report highlights emerging technologies or practices that are likely to enter mainstream use in education within one, three, and five years. Members include universities from across the nation, including Iowa State University, Cal Tech, Auburn, and Stanford, as well as corporations such as Adobe, Apple, and Hewlett Packard.
The *Horizon Report, 2012 Higher Education Edition*, has identified mobile apps and tablet computing as technologies to watch in the near term (within the next 12 months), and game-based learning and learning analytics as likely mid-term adoptions (two to three years out). Do community college instructors agree? This paper examines if and how community college English instructors in Iowa are using these four technologies. (The 2012 *Horizon Report* also predicts that gesture-based technology and the Internet of Things, or smart objects capable of wirelessly transmitting data, will be widely adopted in the longer term. This report does not include those technologies.)

In 2000, about 5.5 million degree-seeking students attended two-year colleges. In the 2010-2011 school year, that number jumped to more than 8 million. Which emerging technologies are relevant to the community college classroom? Which support ideal teaching practices in writing (e.g., writing as process, research practices, modes of discourse)? This chapter examines technology in writing education from three perspectives: (1) the impact technology has today on teaching and learning in general, and on writing specifically; (2) the potential uses of mobile apps and tablet computing to improve writing skills; and lastly, (3) the potential uses of game-based learning and learning analytics in writing instruction in the near future.

**The Effects of Technology on Learning**

The term educational technology can be a very general construct, including anything from overhead projectors and video tapes, to superfast computer processors, or virtual reality environments. Nearly 80 years ago, the journal
Elementary English claimed the manual typewriter would dramatically change writing: “Education must assume control of this new educational tool” (reported in “Will Technology Advance Learning?”). Of course, editing and revision have become much easier thanks to electronic word processing tools, but the typewriter is now antiquated.

In the early days of radio and video recordings, media (visual and audio-visual aids) were considered supplements to teacher-centered instruction (Resier, 1997). In 1963, the Department of Audiovisual Instruction of the National Education Association established the Commission on Definition and Terminology. The Commission defined audiovisual communication as “that branch of educational theory and practice concerned primarily with the design and use of messages which control the learning process.” Here, then, the field became student-centered, rather than teacher-centered (Reiser, 1997).

In 1970, the federal government put forth its own definition (Commission on Instructional Technology), and today, the 1977 Department of Education definition of technology remains broad enough to encompass the scope of the present study. It states, in part:

Educational technology is a complex, integrated process involving people, procedures, ideas, devices, and organizations for analyzing problems and devising, implementing, evaluating, and managing solutions to those problems, involved in all aspect of human learning.

(qtd. in Reiser, 1997, 68)
This study defines educational technology using more specific criteria, set forth by the National Center for Education Statistics (2002), including:

- Computers and computer-driven equipment, such as printers, scanners, digital cameras, video cameras, LCD projectors, and other devices
- Equipment that supports wired and wireless communication between computers, and providing access to the global internet
- Audio and visual equipment that supports distance education
- The software applications and programs used with the above equipment.

Today colleges have plentiful computer labs, computer classrooms, wireless connectivity and a roster of professionals dedicated to making sure everything runs smoothly. Teaching and learning are no longer confined to the physical classroom, however. The numbers of hybrid and online courses have skyrocketed: with more than 5.6 million online students in 2009, according to the Chronicle of Higher Education (2010). In 2007-2008, 22.1% of postsecondary students took at least some online coursework, up from 8% in 1999-2000. Additionally, 8.7% were educated entirely online (National Center for Education Statistics, 2011). While community college students take online courses at a higher rate than four-year students, they are also eight percent less likely to finish the course than their peers in classroom-based courses (Brown, 2011).

Whether learning takes place in the classroom or outside of it, theorists cannot agree about the relative benefits and challenges of using technology in
education, or how to measure it. Some researchers insist that technologies, in and of themselves, will never cause more learning to take place. As long ago as 1997, media reviewer Wilbur Schramm asserted that learning is more a function of instructional strategy and content than of the media chosen to deliver the instruction. Richard Clark, professor of educational psychology and technology at the University of California-Los Angeles, argued in the mid-1980s that there are no learning benefits attributable to media use (“Media Will Never”).

Clark says that instructional media provide efficiency in delivery and access to methods and environments that enhance student achievement, but they do not, in themselves, “activate, compensate, or supplant” the cognitive processes involved in learning. Whether or not technology changes cognitive structures or processes of the human brain, many other researchers are confident technology does and will continue to have a profound impact on student achievement in at least the following areas:

- They allow students to solve real-world problems, often by using microworlds
- They create environment where students learn by doing authentic work, using tools similar to those used in the workplace
- They enhance collaborative learning and feedback
- They enable students to master more complex subjects via rich interactions with resources outside the classroom
- They foster success by enhancing motivation and interest (National Research Council, 2000; Dede, 2000; Papert, 1993).
Clark claims that the media are "not directly responsible for motivating learning," but that student expectations for success are responsible for increased motivation (1993). Regardless of the reason, motivation could be considered a successful outcome of the use of technology. Or it could be a trigger for technology use. That is, motivation to succeed leads to more technology use. The U.S. Department of Education's *National Education Technology Plan* says that effective use of state-of-the-art technology “inspire[s] all students, regardless of background, languages, or disabilities, to achieve” (2010).

According to Mark Prensky, who first coined the term, “digital natives” began arriving in K-12 schools in the mid-1990s. He claims that students who have grown up with many electronic media at their fingertips have different thinking patterns and thus learn differently from students a few decades ago. For example, digital natives prefer to learn new tasks by trial and error, as they learn a video game, rather than read directions, Prensky said. He argued that “digital immigrant instructors” speak an outdated language and struggle to teach today’s students (“Digital Natives”).

How do teachers catch up to their native students and use technology effectively? The Technological Pedagogical Content Knowledge (TPACK) is an organization that “attempts to identify the nature of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge” (Koehler, 2011, para.1). TPACK has been shown to be a useful model to show how instructors should effectively integrate technology into teaching. Matthew Koehler and Punya Mishra of
Michigan State University have developed a framework to describe teacher knowledge about and use of technology. The framework integrates knowledge of technology (generally digital technologies that are usable in different ways), knowledge of the pedagogy of effective teaching and learning, and content knowledge. It is not enough to know how to use a specific software or hardware, the pair says; rather, effective use of technology integrates all three of the above areas. Effective instructors consciously choose and adapt technologies to find multiple ways to represent subject matter, to adapt and tailor instructional materials to fit multiple learners and ways of learning, and to effectively assess student progress:

By simultaneously integrating knowledge of technology, pedagogy and content, expert teachers bring TPACK into play any time they teach. Each situation presented to teachers is a unique combination of these three factors…Thus, teachers need to develop fluency and cognitive flexibility not just in each of the key domains (T, P, and C), but also in the manner in which these domains and contextual parameters interrelate, so that they can construct effective solutions. (66)

In addition, the technology knowledge of TPACK is “always in a state of flux,” the researchers say. It evolves “over a lifetime of generative, open-ended interaction with technology” (64). In other words, instructors must continually update their skills and adapt to innovation.

Koehler and Mishra also say that teacher efforts to use technology are often unsupported by institutions. In addition, they say that, “Teachers often have inadequate…experiences with using digital technologies for teaching and learning”
The U.S. Department of Education agrees that teachers need to be better prepared in how to use technology effectively, saying that:

The technology that enables connected teaching is available now, but not all the conditions necessary to leverage it are. Many of our existing educators do not have the same understanding of and ease with using technology that is part of the daily lives of professionals in other sectors. . . This gap prevents technology from being used in ways that would improve instructional practices and learning outcomes. (*National Education Technology Plan*)

Writing instructors who use technology purposefully and critically might be able to better prepare students for success in college-level writing courses. One study shows that students who learn to write using word processing programs achieve higher standardized test scores. While only 27% of 28,100 12th graders tested by the National Assessment of Educational Progress (NAEP) scored at or above the proficient level in 2011, those who regularly compose electronically in the classroom showed an advantage. Beverly Ann Chin, professor of English at the University of Montana, said, “These findings support the importance of integrating computers into writing instruction. When teachers encourage students to use word-processing features on a regular basis, students learn how computers can facilitate their writing processes and improve their final product” (Fleming).

To be successful in a first-year credit-bearing composition course, the Council of Writing Program Administrators (CWPA) asks instructors to give students multiple strategies for writing and research and the ability to compose in multiple
environments – “from traditional pen and paper to electronic technologies.” Using technology is one way to foster creativity, curiosity, engagement, and other habits of mind necessary to successful college writing, the CWPA report says (“Framework for Success”).

**Technology in Writing Instruction**

New technologies are often exploited first to modify how old tasks are done (Papert, 1993). Word processing is an example. Typing an essay offers improved legibility over the hand-written version, but the product is essentially the same. Today, however, technology is fundamentally changing the field of writing instruction. The essay might be augmented by a photograph or supplanted by an edited video sequence.

The National Council of the Teachers of English (NCTE) recognizes the trend toward integrating visual and written literacies (“Trends and Issues in English Instruction”). One of the trends formally recognized by the NCTE Commission on Composition is “the growing need to weave technology into the curriculum and to define and develop the skills of viewing and visual representations as an integral part of a curriculum” (1999).

The definition of literacy is no longer confined to traditional reading and writing, according to Sara Kajder, recipient of the National Technology Leadership Fellowship. She says that a student who can leverage specific media, including pictures, video, social media, and alternate texts to effectively communicate is multiply literate. Kajder quotes Jabari Mahiri, director of the TEACH project at UC-Berkley: “Traditional concepts of print-based literacy do not apprehend the richness
and complexity of actual literacy practices in people’s lives enabled by new technologies ("Adolescents and Digital Literacies").

While acknowledging that technology has changed expectations for the nature of writing and literacy, NCTE has not changed some fundamental beliefs about the teaching of writing (2004). Chiefly, composing is still viewed as a multi-step process that includes pre-writing, organizing a message, revising and editing, and preparing products for public audiences. However, the use of composition tools, including word-processing and design software and computer-based resources, now guides the composing process.

In its most recent guideline, NCTE has called for the “integration of multiple modes of communication and expression” to “enhance or transform the meaning of work beyond illustration or decoration” (2005, 2008). Because these types of multi-modal projects are often complex and because of the different skill levels of students, such projects often require a high level of collaboration. The Council recommends that “the techniques of acquiring, organizing, evaluating, and creatively using multimodal information should become an increasingly important component of the English/Language Arts classroom,” and that “skills, approaches and attitudes toward media literacy, visual and aural rhetorics, and critical literacy should be taught in English/Language Arts classrooms” ("Multi-Modal Literacies").

In a position statement, the Conference on College Composition and Communication declares that “the focus of writing instruction is expanding: the curriculum of composition is widening to include not one but two literacies: a literacy of print and a literacy of the screen…. Increasingly, classes and programs in writing
require that students compose digitally” (CCCC, 2004). In 2004, Bemidji State University offered a course to teach “online writing,” using blogs and wikis, a novel idea at the time. But blogs and wikis are old news. Which innovations are knocking at the door of higher education? Which innovations are likely to benefit writing instruction in particular?

Scientist Seymour Papert said that “education innovators must be aware that in order to be successful they must be sensitive to what is happening in the surrounding culture and use dynamic cultural trends as a medium to carry their educational interventions” (Mindstorms). A decade ago, when NCTE and CCCC were defining technology literacy, this meant that most community colleges made computers and the wired internet connectivity widely available for composition students to conduct online research, use revision and documentation tools, create multi-modal compositions, and publish electronic works…while seated at the computer. Today they are more likely to use an internet-connected cell phone or tablet computer, according to the Horizon Report (New Media Consortium, 2012).

Not all students have equal technology skills, however. Jane Manner, a college instructor writing for Tech Trends, notes that many of her non-traditional aged students lack computer skills similar to younger students, causing a digital divide in the abilities and confidence level of her students to navigate technology in class (2003). It can be assumed that many non-traditional-aged college students might similarly have more challenges navigating computer hardware and software compared to their young adult counterparts. While 72% of Iowa community college students are age 25 or younger, the number of older students continues to grow.
(“Annual Report”). Nationally, 38% of those enrolled in colleges and universities are over the age of 25, and 25 percent are over 30 (National Center for Education Statistics, 2011). The share of all students who are over age 25 is projected to increase another 23 percent by 2019.

While most college students, regardless of age, are likely to be expected to use basic classroom technologies, such as Internet navigation and elementary word processing tools, the Horizon Report predicts that four specific technologies will have a significant impact on education within the next three years (2012). These technologies are discussed below.

**Mobile Apps – Time to Adoption: 1 year or less**

The cell phone is ubiquitous on the college campus. Just take a stroll around any campus and one could see noses buried in text messages. Instructors are now being asked to balance legitimate uses of cell phones for education purposes (e.g., consulting the web for course-related information and taking notes) versus casual texting. According to the Pew Internet Foundation, nearly 95% of traditional college-aged adults (18-29) have a cell phone (2012). More than 87% of older American adults possess a cell phone as well. In fact, there are more cell phones in the U.S. than people, Pew points out. Cell phones need internet access to make use of applications (apps). According to an article in Consumer Reports, 55 % adults surveyed go online with their cell phones, up sharply from 31% just 3 years ago (2012). And 31% surveyed said they use their handheld for web browsing more than they use a computer. Another study found that 50% of U.S. undergraduate students
surveyed own an internet-capable handheld device, only 11% said they use the device for course-related activities ("Universities Log On").

The most common use of apps in an educational setting is for university information. An Educause voluntary survey last year shows that 79% of AA degree-granting colleges say use of mobile apps are “being considered, being planned, or deployed” (2011). The study does not differentiate, however, between apps used to navigate the campus versus apps used for educational purposes (Core Data Service Almanac).

Eugene Geist in College Student Journal predicts that the future of learning management systems (e.g., Blackboard and WebCT) will be mobile-and app-based rather than web-based ("The Game Changer"). On-line universities seem to be leading the charge to adopt mobile apps that allow students to access course content. For example, Western Governors University and Golden Gate University, both non-profit online institutions, use an app that allows students to access online discussions, assignments, and grades (Marklein 2011). Land-based colleges are not far behind. Northwestern University was a leader in developing an app that lets users look up the university web page, including viewing art collections and library offerings. After responding to student demands, however, a year and a half ago Northwestern created an app that allows connectivity to the Blackboard platform ("Universities Log On," 2012). Seventy-eight percent of 1,300 Iowa State University students said in March that they wanted “mobile access” to course management systems (Marklein). In the College Student Journal, Geist says:
The “app” will become the new way to deliver information quickly and efficiently. We are already seeing schools, universities, and even individual classes and instructors having their own personal “apps” to deliver relevant information quickly and efficiently. It is no longer just sufficient to have a webpage or to use a course management system... (“The Game Changer”)

Students want to do more than check grades or sports scores, the Horizon Report says. The report suggests numerous ways apps can be integrated into individual course curriculum. For example, students at Penn State University are developing a mobile video app that allows ethnographers to record and edit video alongside text annotations.

In addition, the report envisions widespread use of apps appropriate for the English composition classroom. Audio and video digital capture and editing, annotation tools, and composition tools could all be used for a single assignment. iBook Author makes it easy for anyone to create media-rich interactive compositions, the report claims (2012).

Community colleges usually lack the resources to implement technology at the same pace as universities. But that does not mean that individuals haven’t found ways to use apps. At the 2012 Iowa English Teacher’s Roundtable, two community college professors shared how they use two iPad apps. One instructor said he uses Evernote at conferences to take notes, record sound bites, capture clips from the web, and even take photos of Powerpoint slides and save it all in the cloud. Another uses an app called iAnnotate to mark essays with a stylus and offer feedback on
rough drafts. Jed Shahar, a basic education instructor at City University of New York’s Queensborough Community College, found an innovative use for the voice note app on a cell phone: he has students read and record their essays, which he then uploads to a web site where the student and peer reviewers often hear grammar errors that are otherwise missed during a silent reading (“Value of Cell Phones”).

Mobile apps abound in private life. One might use apps for perusing the menu of a restaurant, navigating to that restaurant via GPS, and even tweeting an online review before the meal is finished. However, mobile application use in education is still in its fledgling stage. Tablet computers, often employed to download and use apps, are more common in classrooms today.

**Tablets – Time to Adoption: 1 year or less**

According to the Horizon Report, tablet computers have come to be viewed as a technology in its own right – “one that blends features of laptops, smartphones, and earlier tablet computers with always-connect internet, and thousands of apps with which to personalize the experience” (NMC, 2012).

Tablets, however, are not as widespread as web-equipped cell phones: the largest ownership of tablets in the U.S. by age goes to 30-40-year olds (25%), followed by 18-29-year olds at 20% (pewinternet.org). While this survey shows a large increase in tablet ownership (up from just 3% total ownership in May 2010), the figures suggest that the NMC prediction of one year or less for wide-spread adoption of tablet computing in the post-secondary classroom could be difficult to attain. The Pew Internet Foundation reports that community college students lag behind in
gadget ownership in general. For example, a 2011 Pew Internet report says that 85% of community college students have wireless connectivity (via cell phone, tablet or computer), compared to 92% of all U.S. undergraduates (Smith et al., 2011).

An Educause study in 2007 found that AA-degree granting institutions that participated in the survey did not provide computers to all students. Five years later only about 6% of all colleges participating in the study provided computers to all students. Most of these campuses provide laptops (notably Cornell University). Fewer than 20% of reporting AA institutions required students to own or lease a computer while on campus (“Faculty and Student Computing”). There are notable exceptions at 4-year universities, including George Fox in Oregon, that give students a free MacBook or iPad.

Simply giving students a tablet is not enough to transform education, just as giving someone a spoon does not mean they will not go hungry. Microsoft Founder Bill Gates says there are many people who are learning better and learning more thanks to online materials. Still, he deplores the low graduation rates in higher-education institutions, which stand at less than 50% at community colleges, according to the American Association of Community Colleges. When asked if tablet computers could really make a difference in education, Gates, speaking on behalf of the Bill and Melinda Gates Foundation said, “Just giving people devices has a really horrible track record. You really have to change the curriculum and the curriculum and the teacher…. Students aren’t there just to read things. They’re actually supposed to be able to write and communicate” (“A Conversation with Bill Gates,” 2012).
Seven years ago Andrea Foster wrote in the *Chronicle of Higher Education* about the use of tablets to speed up marking and revising essays (2005). In this case, 25 students in an English Composition course at CUNY State Island were loaned tablet PCs. Students liked the fact that the tablets are lightweight that they could easily access documents and notes and that they could quickly complete peer review mark-ups with the stylus (“Mark Essays Electronically”). Other than the hand, it would seem today’s laptops can function in an identical manner - no real teaching innovation here. More recently, Apple iPads were given to senior-level Education students and although the tablets were preloaded with software and the students were encouraged to use the devices in whatever manner benefited them, most reported that the primary benefit was convenience (e.g., as an e-reader and a way to have immediate access to handouts and notes while the instructor lectures). It seems not much innovation has occurred in the seven passing years. Nonetheless, students claimed using the iPad “changed the way that they interacted in class and with the instructor” (“The Game Changer”). The *Horizon Report* describes an iPad app created by the University of Queensland that allows instructors to insert audio and written feedback into assessments of student writing at precise locations in the draft.

Wireless connectivity is needed to support most tablet users (data service purchase is an extra cost). According to Educause, in 2007 61% of AA degree granting college classrooms were at least 75% equipped with wireless connectivity. Four years later 77% of reporting institutions said at least 74% of their classrooms offered wireless connectivity (*Core Data Service Almanac, 2007 and 2011*).
Looking at community college campuses specifically, Wylie Wong says in the *Community College Journal* that several institutions are piloting mobile technologies inside classrooms. Wong says that tablet computers economically support electronic course content, including electronic textbooks. In addition to cost, tablets have other advantages over laptops, he says, including interface and ease of use (2012).

There are some drawbacks to tablets, however. After a semester of iPad use, English students at Scottsdale Community College in Arizona said they preferred to write papers on regular computers rather than having to attach a wireless keyboard or attempt to type on a touch-screen pad. In addition, Wong says colleges need a strong professional development program to empower teachers to effectively use the technology (“Tools of the Trade”).

**Gaming – Time to Adoption: 3-5 years.**

Parents over the last two decades will remember buying Fisher Price and LeapFrog computerized games for their preschoolers. The positive and negative effects on teenagers playing hour after hour of Nintendo or Xbox have been long debated. Education game theory is not about the effects of the popular war simulation game, *Call of Duty*, however. The U.S. Department of Education’s National Education Technology Plan says that gaming is an ideal method of assessing student comprehension by providing immediate feedback (2010). By keeping students motivated to do better (get to the next level), students remain engaged in games (*Horizon Report, 2012*). Games are valuable in teaching collaboration, empathy for multiple perspectives, exploration, experimentation success and failure, and of course, simulations with problem solving.
“Game-based learning reflects a number of important skills higher education institutions strive for their students to acquire: collaboration, problem solving, communication, critical thinking, and digital literacy,” the Horizon Report says (19). “Open-ended, challenge-based, truly collaborative games are an emerging category of games that seems especially appropriate for higher education…(they) can draw on skills for research, writing, collaboration, problem solving, public speaking, leadership, digital literacy, and media-making,” the report continues (19). These capabilities seem to support English composition instruction but the report offered no examples of such games currently in use for this purpose.

Games seem to be more prevalent in K-12 classrooms than at the post-secondary level. Katie Ash, writing for Education Week, describes a device that combines mobile-learning and gaming. TeacherMates are Game Boy-like devices being used in 15 states to teach reading skills to K-2 students. One teacher who uses the devices says students are able to “just play the game” without much assistance, allowing the teacher more free time to work with students on-on-one. Critics, however, claim that there is not much research on the effectiveness of the games. Others say games are frequently used for drill and practice rather than prompting active thinking (“Targeting Elementary Readers”).

Students are now creating their own games. Ian Quillen, in Digital Directions, describes a high school class of juniors created a shooting game with the ultimate goal of testing players’ knowledge of quadratic equations. Having students create games to test educational concepts requires high level critical thinking and communication skills, Quillen says.
Douglas Gentile, Assistant Professor of Developmental Psychology at Iowa State University, says, “When it comes to the effects of video games on kids, most people want to simplify the debate to say they’re either ‘good’ or ‘bad’ for them. But research shows that both sides can be right when you consider the multiple dimensions of video game effects.” While agreeing that recreational video games can have a negative effect, Gentile says educators need to maximize the benefits of video games as “powerful teaching tools” (“Are Video Games Beneficial?” 2012).

Bill Watson, director of the Purdue Center for Serious Games and Learning in Virtual Environments, agrees. He says that games have enormous potential to teach students and adds, “It’s a misconception among some people that games will do the whole job…the teacher very much needs to know what objectives they want from the game.” Educational technology researcher Chris Stapleton adds that assessment of whether or not learning objectives have been met is needed. He says, “Devising a game that actually assesses what it’s supposed to can be difficult. Providing professional development for teachers so they know how to use the game effectively is absolutely key” (“Digital Gaming”).

As noted above, none of the examples of gaming in the Horizon Report detail their use in the post-secondary English classroom. The NCTE website defines game-based learning pedagogy as “an interdisciplinary, multimodal pedagogy that utilizes games and the deep learning principles embodied by games to increase student motivation, engagement, and performance” (2012). While flash cards and Jeopardy-like games are embedded in the K-12 classroom, it is difficult to find examples of gaming used in the post-secondary classroom. A 2005 issue of
Teaching English in the Two-Year College explores using games to reinforce and reteach grammar skills. The article says grammar games can be valuable because “to alleviate the tedium of grammar, grammar instruction needs to be innovative and interactive, giving students more responsibility for their own learning” (Thomas).

Learning Analytics – Time to Adoption: 3 - 5 years

The 2011 higher education editions of the Horizon Report predicted that learning analytics would make a significant impact on education in the longer term – that is, in more than five years. Learning analytics is the collection and analysis of data from explicit student actions, such as completing assignments, and tacit actions, such as discussion forums and learning activities that are not directly assessed as part of educational progress (NMC). However, after the announcement of two large-scale initiatives to develop learning analytics (EDUCAUSE and the Gates Foundation are partnering on one project; the other is led by Carnegie Mellon University), NMC moved the adoption time frame to the mid-term horizon (2012).

The goal of learning analytics, the Horizon Report says, “is to enable teachers and schools to tailor educational opportunities to each student’s level of need and ability in close-to-real time” (2012). Ideally, this technology would be a far cry from B.F. Skinner’s failed “teaching machines” that used rote and drill to automate instruction. Computer learning programs, such as PLATO, have used a form of learning analytics for years. For example, students who answer a math question incorrectly will receive the same type of problem until mastery of the concept is determined. Then the program moves the students to a new concept. Learning analytics builds on this type of instruction, but aims to go further by “merging
information from disparate sources to create a far more robust and nuanced picture of learning. . .that can be used to improve both teaching and learning environments,” the Horizon Report says (23).

The US Department of Education seems to agree. The department differentiates learning analytics from adaptive testing that has been used for years, stating “adaptive assessment….is designed to identify the next kind of learning experiences that will most benefit the particular learner” (“Better Assessment”). Similarly, competency-based curriculum is being tested at some K-12 schools. The Lindsay Unified School District in California, for instance, is moving toward an individualized system using technology to personalize learning. Rather than progressing by age or school calendar year, students progress by demonstrating proficiency on learning objectives. Writing for Education Week, Katie Ash quotes an educational software developer who says, “In addition to helping teachers differentiate instruction for students, new technologies are giving rise to more powerful and detailed information systems…about students and teachers and teacher effectiveness” (“Competency-Based Schools”).

The Open Learning Initiative at Carnegie-Melon offers an example of the learning analytics concept at work in higher education. There, students manipulate simulated biological processes, take short quizzes to check understanding, then report the “muddiest points” (Horizon Report, 2012) When answers are wrong, tutoring with hints and scaffolding [helping students build on prior knowledge] help the student along. The instructor then obtains a report by individual student and the
class aggregate that shows where classroom instruction is most needed (“Meshing Learning”).

The publishers McGraw Hill and Pearson have created “Learn Smart” and “MyLabs” to provide learning analytics for their LMS systems. McGraw Hill claims its program helps students improve metacognition by assessing student confidence that they are able to answer questions correctly. The program then provides review strategies based on the levels of confidence versus correct/incorrect answers. The Horizon Report, however, says that effective analytics environments assess creativity, leadership, and innovation, as well as mastery of course content. Learning Catalytics at Harvard University is a more advanced program, the report says. The program supports peer-to-peer instruction by providing real-time feedback during class. As instructors ask questions about course materials, the program gauges student responses from a multitude of perspectives and helps group students for discussions and further course work (2012).

Writing for Education Week, Joseph Renzulli says effective personalization requires more than just looking at achievement levels. Educators should aggregate information about student interests, learning styles, and preferred modes of expression to add more depth and complexity to the curriculum (“Fighting the Enemies”). Writing instructors who use learning analytics in this manner might allow students to choose to compose in traditional prose, or compose graphically, via multi-media, instead.

Contributors to the Horizon Report have high hopes for each of the four technologies detailed above. The next chapter describes the methods that will be
used to answer the research questions: How do community college English
instructors use mobile apps, tablet computing, game-based learning, and learning
analytics for instruction and/or assessment? How do they determine the
effectiveness of technology use? How do they assess their technology growth in the
past five years?
The specific objectives of this study are modeled in part on the educational software/hardware manufacturer CDW-G “Teachers Talk Tech 2005” survey, conducted by Quality Education Data researchers. According to this national survey of 1,000 K-12 teachers, teachers are often in the best position to see the true impact of technology. Like the survey, the current study aims to evaluate technology’s role and efficacy in college writing instruction, and to evaluate the likelihood that the four emerging technologies identified in the *Horizon Report* will be applied to teach writing skills in Iowa community colleges. From this background, the study focused on the following three research questions:

**RQ1. How do Iowa community college English instructors use technology for writing instruction and/or assessment?**

**RQ2. How do Iowa community college English instructors perceive the effectiveness of technology use in writing instruction and/or assessment?**

**RQ3. Which of the four technologies that the Horizon Report, 2012 Higher Education Edition suggests will become widely used in higher education instruction within one to five years (mobile apps, tablet computing, game-based learning, and learning analytics) do Iowa community college writing instructors currently have available and use in their classrooms?**

Data for this study were gathered in two ways. First, quantitative information was gathered from an online survey of college English writing instructors in the state
of Iowa. Second, qualitative information was gathered from face-to-face interviews with four faculty members in the author’s own community college district.

**Sample Selection**

The survey questionnaire was sent to 149 Iowa Community College English and/or Communications instructors listed as members of the Iowa English Teacher’s Roundtable, an annual conference held in different Iowa community college campuses. The sample included full-time faculty and contingent faculty. Some of the instructors are high school faculty who teach dual-credit courses. The email addresses came from a mailing list of English instructors in Iowa who are invited to attend the discipline’s annual conference. This list, which served as the study’s sampling frame, is updated annually and is known to capture all community college English instructors in the state, although it may not include new hires. It should, however, list the teachers who have had some experience teaching college writing courses.

The first wave was emailed on Nov. 1, 2012; the second follow-up wave was sent on Nov. 15, 2012, allowing respondents 20 days to return their completed questionnaires. The survey questionnaire was administered to five local community college English instructors as a pretest measure.

Iowa teachers were selected as sampling units because the state consistently ranks high in student achievement in writing. For example, in 2011 Iowa high school students ranked 16th in average ACT scores in English (ACT, 2011) and was one of the top ten states in terms of assessment scores given by the National Assessment for Educational Progress (2006).
According to the “Annual Condition of Iowa Community College’s Report 2011” almost 50% of the degrees awarded by Iowa community colleges are Associate’s degrees, which require eight to nine English/Communications credits. In addition, the report notes that Iowa’s community college students are younger than the national average, suggesting that a significant percentage can be considered “digital natives.” High school students who also take college credit courses account for one quarter of Iowa community college enrollment, reaching a record high of nearly 40,000 in fiscal year 2011. The annual report says:

The average age was unchanged at 23 years old, but the median age grew from 19 years old to 20 years old, consistent with national data……Thus, half of Iowa community college students are still teenagers. Iowa community college students are younger than the national average for community colleges. Seventy-two percent (72%) of students are traditional-age students under 25 years old. Nationally, 60 percent of students in public two-year colleges are traditional-age students. (“Annual Condition of Iowa Community Colleges Report 2011”)

The sample represents community college districts throughout the state. These and their respective enrollment figures are listed in table 3.1 below.
Table 3.1 – Fall Enrollment by College and Attendance Status: 2011. (Source: Iowa Department of Education “Fall Enrollment Report 2011”)

<table>
<thead>
<tr>
<th>College</th>
<th>Attendance Status</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full-Time</td>
<td>Part Time</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>2,195</td>
<td>2,858</td>
<td>5,053</td>
<td></td>
</tr>
<tr>
<td>North Iowa Area</td>
<td>1,903</td>
<td>1,654</td>
<td>3,557</td>
<td></td>
</tr>
<tr>
<td>Iowa Lakes</td>
<td>1,770</td>
<td>1,488</td>
<td>3,258</td>
<td></td>
</tr>
<tr>
<td>Northwest Iowa</td>
<td>727</td>
<td>817</td>
<td>1,544</td>
<td></td>
</tr>
<tr>
<td>Iowa</td>
<td>3,492</td>
<td>2,806</td>
<td>6,298</td>
<td></td>
</tr>
<tr>
<td>Iowa Central</td>
<td>1,795</td>
<td>1,259</td>
<td>3,054</td>
<td></td>
</tr>
<tr>
<td>Hawkeye</td>
<td>3,551</td>
<td>2,687</td>
<td>6,238</td>
<td></td>
</tr>
<tr>
<td>Eastern Iowa</td>
<td>4,125</td>
<td>5,714</td>
<td>9,839</td>
<td></td>
</tr>
<tr>
<td>Kirkwood</td>
<td>9,129</td>
<td>8,481</td>
<td>17,610</td>
<td></td>
</tr>
<tr>
<td>Des Moines Area</td>
<td>9,508</td>
<td>15,917</td>
<td>25,425</td>
<td></td>
</tr>
<tr>
<td>Western Iowa Tech</td>
<td>3,083</td>
<td>3,704</td>
<td>6,787</td>
<td></td>
</tr>
<tr>
<td>Iowa Western</td>
<td>4,071</td>
<td>3,105</td>
<td>7,176</td>
<td></td>
</tr>
<tr>
<td>Southwestern</td>
<td>876</td>
<td>886</td>
<td>1,762</td>
<td></td>
</tr>
<tr>
<td>Indian Hills</td>
<td>3,085</td>
<td>1,948</td>
<td>5,033</td>
<td></td>
</tr>
<tr>
<td>Southeastern</td>
<td>1,797</td>
<td>1,544</td>
<td>3,341</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>51,107</strong></td>
<td><strong>54,868</strong></td>
<td><strong>105,975</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note: Students enrolled in 12 or more credit hours are counted as full-time.

In addition four full-time English faculty members in the author’s community college district were interviewed to gain further insights into the uses and perceived benefits of technology in the English composition classroom. The four interviewees ranged in age from mid-thirties to late-fifties, with about eight to 25 years of experience teaching at the community college level. The participants are identified by pseudonym in the results section.
The Questionnaires

The survey questionnaire (Appendix B) consisted of 10 questions. The first eight were designed to inventory the software and hardware technologies currently in use by the instructors in their writing classrooms, and to as assess the efficacy of these technologies from their point of view. This section has open and closed-ended questions. The respondents were asked to indicate their general use of technology and their use of mobile apps, tablet computing, gaming, and learning analytics technologies. Some items asked the purpose for which the technology is used, according to the following major steps involved in the writing process (NCTE, 2004): brainstorming, organizing the material, research, drafting, editing, peer collaboration, feedback and/or assessment from the instructor, and use of electronic publishing tools.

The teachers were also asked about the efficacy of technologies in helping writers master the various steps of the writing process. Questions also determined teachers’ evaluations of students’ finished product or project. Another question aimed to elicit teachers’ perceptions of the broader educational benefits that can be attributed to technology use. A couple of questions asked about teachers’ willingness and ability to use emerging technologies. The final question asked teachers to comment on their experiences with technology in general.

The last section of the questionnaire collected demographic information about the respondents and their institutions where they teach. The section contains multiple-choice items about the size and location of the instructor’s community
college, and the teachers’ gender, education level, and years of teaching experience.

A cover email (Appendix A) explaining the study and its goals was sent with an electronic link to the questionnaire. The email message indicated that the results would be used to assess the current usage and efficacy of technology in Iowa community college writing courses. It included the Ellsworth Community College logo because university sponsorship has been found to increase the rate of survey response (Wimmer and Dominick, 2006). The cover letter included a response deadline.

The four faculty members selected for in-depth interviews were asked 28 structured questions divided into four sections (Appendix D). The first 10 questions asked respondents about the history of their uses of technology in general and their perceptions of the impact of technology in their courses. The next three sections asked respondents if and how they use mobile apps, tablet computing, game-based learning and learning analytics. The last question asked for additional feedback.

The interviews averaged 30 minutes in length. They were audio-taped for later transcription and notes were taken during the conversations. The four subjects were given an IRB-approved notice about the purpose of the study and were asked to indicate (with a signature) that they were voluntary participants (Appendix C).

**Variables**

**Use of technology**

*RQ1: How do Iowa community college English instructors use technology for writing instruction and/or assessment?*
Respondents to the online survey were asked to indicate which types of technologies they currently use (Q. 2 and 3). These may include software that check spelling to those the enable blogs and podcasts. They can be grouped according to the following functions they offer.

(1) **Brainstorming** tools allow students to input a topic and related ideas, which are then organized in visual maps or text outlines by the software.

(2) **Research** tools are internet pages, search engines, and databases.

(3) **Drafting** tools are electronic typing programs.

(4) **Editing** tools check and correct grammar, punctuation, and spelling.

(5) **Peer collaboration** and **feedback/assessment** tools allow students and teachers to communicate through electronic channels, including:

   (a) **document-based annotation**, which is the ability to write comments in the margins of an electronic document,

   (b) **blogs**, which are online journals that are continuously updated by the owner,

   (c) **wikis**, which are online journals/documents that can be edited and changed by anyone,

   (d) **synchronous chat** allows users to communicate in near real-time, such as instant messaging programs
(e) asynchronous chat allows users to communicate at each other’s convenience, such as through email, or electronic bulletin boards where someone posts and others reply to the message or start a new “thread” on another topic.

Respondents were also asked to indicate the

(6) publishing tools they use, including

(a) web pages or other hypermedia, which are electronic documents that typically contain a combination of text and graphics and allow users non-linear movement among pages,

(b) audio broadcasts (podcasts), which are audio files published by an electronic host, such as iTunes,

(c) digital photography and videography, which is the use of still or moving pictures as part of or the entire publication,

(d) blogging and wikis, and

(e) other, which allows respondents to add technologies not specifically named.

Interview respondents to the face-to-face interview questions were also asked to describe the history of their use of technology in teaching and learning (Q. 1), to name specific technologies they used in the classroom (Q. 2), to specify whether or not their classrooms are equipped with computers and/or wireless connectivity (Q. 6), and to describe whether new technologies have increased or decreased their workload (Q. 10). They also were also asked (Q. 7) to describe the tools students
use to create multi-modal assignments [An NCTE position statement in 2004 suggests that writing products should include multi formats and technologies (“NCTE Beliefs about the Teaching of Writing”)].

The four interviewed were also asked if they have observed greater use of tablets and electronic textbooks by their students.

Efficacy of technology

*RQ2: How do Iowa community college English instructors perceive the
effectiveness of technology use in writing instruction and/or assessment?*

The survey respondents were asked the extent to which technology is important to the way instructors teach. Instructors who use technology the most are expected to find it more important to their instruction.

The fourth question asked teachers to rate the efficacy of using technology in the writing process by applying the same elements outlined in RQ 1. Teachers were asked the extent to which their students' successes in the past year could be attributed to technology, with response options ranging from 1 to 5 where 1 means “significant improvement,” 2 means “some improvement,” 3 means “no improvement,” 4 means “negative impact,” and 5 means “significant negative impact.”

Then, respondents were asked which aspects of writing or elements of the finished product were improved by the use of technology (Q. 5). In this list respondents indicated whether an item has or has not been impacted by technology use. These elements were identified by a grading rubric from Western Iowa
Technical College, which is adapted by several Iowa community colleges. These elements include: **thesis development** (statement or implication of a central idea), **coherence** (one main idea per paragraph with connectives between paragraphs), **correctness** (spelling, grammar, punctuation), **clarity** (rhetorically effective language choice), **support** (amount and effectiveness of illustrating material or arguments), **depth** (challenging subject matter) and published **format** (text only, web page, brochure, etc.).

Question 6 gauged the extent to which respondents agree that technology is beneficial for students in a broader educational sense. On a scale of 1 to 5 where 1 means “strongly disagree,” 2 means “disagree,” 3 means “neutral,” 4 means “agree,” and 5 means “strongly agree,” the teacher-respondents were asked whether technology helps students think more creatively and/or work more independently. They were also asked if technology keeps students engaged, and if it improves overall academic performance. These answers were used to assess the correlation between overall benefits accruing from educational technology and their benefits specific to the writing discipline.

In this same question, instructors were asked about their willingness to learn new technologies in general and their assessments of their students' proficiency with computers. It can be hypothesized that teachers who are willing to learn about emerging technologies and who feel students can engage technologies will be more likely to adopt mobile computing devices. This question also used a scale of 1 to 5 where 1 means “strongly disagree,” and 5 means “strongly agree,” with the statements posed.
Respondents in the face-to-face interview were asked to describe the advantages and disadvantages of technology in the classroom (Q. 3 and Q. 4). They were also asked to describe how technology has changed the way they teach (Q. 8) and whether or not their students have equal access to technology (Q. 9).

Finally, instructors who responded to the survey and the in-depth interviews were asked to share comments about the technologies they find most useful in the English composition classroom. Other uses of and benefits from technology might emerge from the qualitative responses (Wimmer and Dominick, 2004).

**Accuracy of the Horizon Report**

RQ3. *Which of the four technologies that the Horizon Report, 2012 Higher Education Edition suggests will become widely used in higher education instruction within one to five years (mobile apps, tablet computing, game-based learning, and learning analytics) do Iowa community college writing instructors currently have available and use in their classrooms?*

Question 7 of the online questionnaire asked respondents if they currently use each of the four technologies listed above. The response options here are “Yes,” “No, but I am familiar with educational uses for this technology,” and “No, I am not familiar with educational uses for this technology.” Respondents who indicated that they use a specific technology, he/she was then asked to describe in an open-ended question how the technology is used for instruction.

Interviewees were also asked to describe both their uses of mobile apps, tablet computing, game-based learning, and learning analytics for instruction, as well
as how students might be using these four technologies. If a particular technology was used, the instructor was then asked to describe the benefits and effectiveness of the technology. A total of 15 questions sought to identify the uses and benefits of the four technologies described by the 2012 Horizon Report.

**Method of Data Analysis**

Frequency distributions were used to show the use of technology for educational purposes in community college classrooms and the number of respondents who use a particular technology as gathered in the survey.

Descriptive statistics were used for questions that seek to evaluate the impact of technology on the various writing stages and the skills involved in the writing process. These questions also assessed the impact of specific technologies on various elements of the students’ finished writing products.

Qualitative analysis was used to report the results of the face-to-face interviews. The interviewer recorded interviewee responses with notes during the interview process. Audio recording also were made of each interview and the responses were transcribed. The answers were analyzed for strands and themes forming patterns. The online survey and face-to-face interview questions are included as Appendix B and Appendix D, respectively.
CHAPTER 4
RESULTS AND DISCUSSION

This chapter consists of three sections: a summary of response to the electronic quantitative survey sent to 149 Iowa community college English instructors, highlights from interviews with four faculty from one Iowa community college district, and a discussion of the results.

Qualitative Results

Of the 149 total questionnaires sent, 30 instructors responded and 12 were undeliverable due to invalid addresses for a survey response rate of 22%. Of the 30 instructors who participated in the survey, 21 did so in the first week after the survey was emailed. After a reminder or second request for responses at the end of four weeks, another nine responses were received. Descriptive statistics show that three-fourths of the respondents have been teaching full-time for seven or more years. In addition, almost 90% possess a master's degree or higher.

In general, most respondents agreed that technology is an important teaching tool in English composition education and that technologies can help students learn the writing process. However, instructors universally said that use of technology in and of itself does not improve the quality of student writing.

RQ1. How do Iowa community college English instructors use technology for writing instruction and/or assessment?

All but two of the respondents (93%) indicated that technology is “very important” or “important” as a teaching tool. More than half (56.7%) indicated that
they use technology daily. Only two of the 30 respondents said that technology was not important as a teaching tool (Table 4.1).

Table 4.1. The Importance of Technology as a Teaching Tool.

<table>
<thead>
<tr>
<th>Response</th>
<th>Percent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Important - I use technology daily</td>
<td>56.7%</td>
<td>17</td>
</tr>
<tr>
<td>Important</td>
<td>36.7%</td>
<td>11</td>
</tr>
<tr>
<td>Neutral</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Somewhat Important</td>
<td>0.0%</td>
<td>0</td>
</tr>
<tr>
<td>Not Important</td>
<td>0.7%</td>
<td>2</td>
</tr>
</tbody>
</table>

Asked to identify the purposes for which technology is used in drafting a writing product, nearly all respondents (96.7%) ask students to complete research via the internet (see Table 4.2). Another pervasive use is for drafting and editing (e.g., grammar and spelling) with 80% using technology tools. Only six (20%) use electronic tools for student brainstorming. Electronic discussion tools are used by 40% of the respondents.
Respondents were then asked how they use technology to review and publish writing projects. Fifty-seven percent said they provide feedback and assessment through electronic documentation; 50% provide feedback through email or asynchronous chat. Two instructors, probably in online classes, reported sharing feedback via videos and one via instant messaging. About one-third (9) said they offer feedback via web-based document sharing.

Very few instructors organize electronic peer review and collaboration. About one-fourth (23%) said their students provide peer reviews via web-based document sharing. Just 13% said their students use document-based annotation. One instructor’s students create video feedback, and another instructor’s students collaborate via blogs and/or wikis.

Only a few instructors publish student writing electronically; 20% said they post compositions via electronic discussion forums. It might be inferred that these are published on the institution’s LMS. Another four publish student texts on web
pages, and four publish via video broadcasting (13%). Three instructors publish digital photography projects, and two publish audio projects.

Respondents were asked if technology helps students learn the writing process. They found technology most valuable in teaching students how to conduct research electronically. Consequently, 90% of respondents saw significant improvement or some improvement in student researching skills (Table 4.3). The next most valuable use of technology in the writing process was for revising and editing (70% each) and composing (56%). About 50% said technology improves invention.

Table 4.3. Technology Use in Writing Process.

<table>
<thead>
<tr>
<th></th>
<th>Significant improvement</th>
<th>Some improvement</th>
<th>No improvement</th>
<th>Negative impact</th>
<th>Significant negative impact</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invention</td>
<td>7.4% (2)</td>
<td>48.1% (13)</td>
<td>40.7% (11)</td>
<td>3.7% (1)</td>
<td>0.0% (0)</td>
<td>27</td>
</tr>
<tr>
<td>Researching</td>
<td>48.3% (14)</td>
<td>41.4% (12)</td>
<td>10.3% (3)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>29</td>
</tr>
<tr>
<td>Composing</td>
<td>18.5% (5)</td>
<td>44.4% (12)</td>
<td>37.0% (10)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>27</td>
</tr>
<tr>
<td>Peer collaboration</td>
<td>4.0% (1)</td>
<td>48.0% (12)</td>
<td>48.0% (12)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>25</td>
</tr>
<tr>
<td>Revising</td>
<td>17.9% (5)</td>
<td>57.1% (16)</td>
<td>25.0% (7)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>28</td>
</tr>
<tr>
<td>Editing</td>
<td>22.2% (6)</td>
<td>55.6% (15)</td>
<td>22.2% (5)</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>27</td>
</tr>
</tbody>
</table>

The least valuable use for technology was for peer collaboration: 42% of respondents saw no value in using technology. Only one respondent said
technology negatively impacts the writing process and that was for the invention process.

The above results indicate that Iowa community college English instructors use a wide variety of technologies in their classrooms and agree that technology helps students effectively learn the writing process. However, instructors have mixed feelings about the effects of technology on the final writing product.

*RQ2. How do Iowa community college English instructors perceive the effectiveness of technology use in writing instruction and/or assessment?*

The best use of technology for finished products is to check for correctness (spelling, grammar, and punctuation), and for properly formatting the essay, 75% of instructors said (Table 4.4). The majority (63%) also agree that technologies help students support their ideas. Just over half agree that technology use helps improve organization and clarity (51.9% and 57.1% respectively) in finished products. Only 40% attribute improvement in thesis development and depth/creativity to technology, however.
Table 4.4. Efficacy of Technology on Writing Products.

<table>
<thead>
<tr>
<th>Element</th>
<th>Yes (%)</th>
<th>No (%)</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis development</td>
<td>40.7%</td>
<td>59.3%</td>
<td>27</td>
</tr>
<tr>
<td>Organization/Coherence</td>
<td>51.5%</td>
<td>48.1%</td>
<td>27</td>
</tr>
<tr>
<td>Correctness</td>
<td>75.0%</td>
<td>25.0%</td>
<td>28</td>
</tr>
<tr>
<td>Clarity/Style</td>
<td>57.1%</td>
<td>42.9%</td>
<td>28</td>
</tr>
<tr>
<td>Evidence/Support</td>
<td>63.0%</td>
<td>37.0%</td>
<td>27</td>
</tr>
<tr>
<td>Depth/Creativity</td>
<td>40.7%</td>
<td>59.3%</td>
<td>27</td>
</tr>
<tr>
<td>Format</td>
<td>75.9%</td>
<td>24.1%</td>
<td>29</td>
</tr>
</tbody>
</table>

Instructors were also lukewarm about the effect of technology on learning in general. Just less than two-thirds (63.3%) feel that technology improves academic performance in general, and only about 36% feel that technology use helps students be more creative (Table 4.5). On the other hand, 75% feel that technology helps students to work independently, and 70% said technology helps keep students engaged in learning.

Two other questions assessed students and instructor proficiency with technology. Surprisingly, fewer than half of the instructor-respondents (43%) felt that their students were proficient in navigating computer hardware used in the composition classroom. A large majority of the instructors (83.4%), however, are
willing to learn to use new technology themselves. Just five respondents were “neutral” on this question, and none said they would not learn to use new technology.

Table 4.5. Effects of Technology on Student Engagement, Student Technology Proficiency, and Instructor Willingness to Learn New Technology.

<table>
<thead>
<tr>
<th>6. To what extent do you agree/disagree with the following statements?</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies encourage my students to think more creatively.</td>
<td>6.7% (2)</td>
<td>23.3% (7)</td>
<td>33.3% (10)</td>
<td>30.0% (9)</td>
<td>5.7% (2)</td>
<td>30</td>
</tr>
<tr>
<td>Technologies help my students to work more independently.</td>
<td>3.3% (1)</td>
<td>13.3% (4)</td>
<td>6.7% (2)</td>
<td>56.7% (17)</td>
<td>20.0% (6)</td>
<td>30</td>
</tr>
<tr>
<td>Technologies help keep my students more engaged and motivated.</td>
<td>3.3% (1)</td>
<td>13.3% (4)</td>
<td>13.3% (4)</td>
<td>60.0% (18)</td>
<td>10.0% (3)</td>
<td>30</td>
</tr>
<tr>
<td>My students' academic performance improves with the use of classroom technologies.</td>
<td>6.7% (2)</td>
<td>3.3% (1)</td>
<td>26.7% (8)</td>
<td>50.0% (15)</td>
<td>13.3% (4)</td>
<td>30</td>
</tr>
<tr>
<td>Most of my students are proficient in navigating computer hardware.</td>
<td>6.7% (2)</td>
<td>40.0% (12)</td>
<td>10.0% (3)</td>
<td>30.0% (9)</td>
<td>13.3% (4)</td>
<td>30</td>
</tr>
<tr>
<td>I am willing to learn new technologies if instruction/support is provided.</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td>16.7% (5)</td>
<td>46.7% (14)</td>
<td>38.7% (11)</td>
<td>30</td>
</tr>
</tbody>
</table>

RQ3. Which of the four technologies that the Horizon Report, 2012 Higher Education Edition suggest will become widely used in higher education instruction within one to five years (mobile apps, tablet computing, game-based learning, and learning analytics) do Iowa community college writing instructors currently have available and use in their classrooms?

It appears the four technologies predicted to make a significant impact on education in the next three years are not likely to be widely used at Iowa community
colleges. For each of the four technologies, at least half of respondents said they did not use it because they were not familiar with their education uses. Four use mobile apps, game-based learning, or learning analytics (Table 4.6).

Tablet computing was the most widely employed technology with 20% reporting use of the devices. When asked to describe uses of the tablet, most said they use the devices for professional activities related to teaching, such as cloud storage and note-taking and for grading. One only said that students use tablets and mobile apps for composition.

Table 4.6. Use of Horizon Project Predicted Technologies.
In an optional comment section one respondent wrote, “My students use tablets and mobile apps to do on the spot research with reference to reading materials/subjects we are actively engaged with in the classroom. These technologies allow them to find nearly instant answers to their questions instead of waiting between 2 and 5 days for me to find the answer for them.” However, it should be pointed out that a laptop computer and wi-fi-enabled classroom would achieve the same results.

**Most Effective Use of Technology**

Asked to describe their most effective use of technology in the past six months, respondents gave answers that seemed to focus on the convenience technologies afford to instructors and students rather than on their potential to facilitate learning. About half of the respondents said they use technology to post assignments online, create discussion areas, and evaluate work (both by the instructor and peer) online as their most effective use of technology. Each of these activities can be conducted in person and via paper copies. None mentioned why or how technology improves learning in these activities. “I review papers online and give feedback,” said one. “I am a paperless grader and keep all class materials in an electronic format so the assignment sheets etc. are available to the students 24/7. I find I get fewer late papers and fewer off topic papers as [students] always know what is expected of them,” said another.

Some instructors feel that technology helps instructors better communicate with students. “All of the efforts have some effectiveness; however, I like grading electronically, giving feedback, and being able to talk to each student individually as
I do it,” replied one. Several listed specific software programs including Turnitin
(plagiarism detection software), Youtube videos, and Writer’s Workbench (a
grammar and revision software) they use for instruction.

Not all find using technology in the English classroom beneficial, however.
Two respondents feel that technology creates more work for the instructor. The
following are examples of negative comments submitted:

- “A drawback is that technology is a LOT of prep work for instructors – at least
  it has been for me….it doesn’t save me time at all, nor does it prevent
  headaches in any way. In fact, it creates new ones!”
- “Technology does absolutely NOTHING in the classroom. It is a distraction
  the size of Texas. My degrees are in English—not computer programming,”
  one instructor said. “We don’t need more machines in the room; we need
  more good teachers.”

Two others agreed to some degree:

- “I am not sure technology itself is effective, but it is the way of the world, so I
  have gotten on board,”
- Another felt that spell and grammar check tools and internet search engines
do work students should be doing on their own. “The tools in and of
themselves do not improve students’ reading and writing, and in some ways
may inhibit developing those skills,” he/she said.

The strongest worded response came from a respondent who might like to see the
field return to pen and paper instruction:
• “English was being taught perfectly well before computers came along. If we could stop talking about computers and once again focus on the basics of grammar and composition, our students would fall on their knees and thank us,” he/she said.

Qualitative Results

Four full-time instructors were interviewed to solicit deeper insights. All were from one Iowa community college district with multiple campuses, typical of Iowa community colleges. The instructors ranged in age from mid-30s to late-50s and had one to 37 years of full-time community college teaching experience on two campuses within the district. Hillary and Mark teach at Ellis College (names and colleges are pseudonyms). Hillary is in her early 40s and in her first year as a full-time English instructor. Mark, the only male interviewee, is in his mid-30s and has been teaching full time for eight years. Two women, Penny and Carol, were from Mailer College. Penny is in her mid-50s and has been teaching full-time at Mailer for 27 years. Carol is in her late 50s and has been teaching English for 37 years. Their opinions about how they use technology, how they perceive the effectiveness of technology use, and which of the four technologies they use in their classrooms were elicited.

RQ1. How do Iowa community college English instructors use technology for writing instruction and/or assessment?

Five of the first ten interview questions asked instructors to describe how they started using technology, the types of technology currently in use, the purposes for
using technology, and the advantages and disadvantages of technology in English composition instruction. Student access to technology for students in the classroom is somewhat limited in this district. English composition courses are not typically taught in a computer classroom at either campus in the district, although all classrooms are equipped with a faculty-use computer, a speaker system, a projector, and wireless internet access. Most also have an Elmo overhead projector and a smart monitor that allows users to mark up text on the computer.

The two younger instructors, both at Ellis College, frequently make use of laptop carts or regularly reserve computer labs for class. The older instructors, who are both at Mailer College, do not. “Space in computer labs is an issue,” said Carol.

The newest and second youngest instructor, Hillary, uses technology the most. She was the Director of Distance Learning for Ellis College before becoming a full-time English instructor just one year ago. Her degree is in second language acquisition; however, she says she acquired technology skills on her own. She was an adjunct English instructor for 11 years prior to her full-time hire. She teaches only one class in a computer classroom (a hybrid course taught partially online and partially face-to-face). In the non-computer classroom she uses PowerPoint and Prezi presentation software, the overhead computer projector/monitor, and an Elmo projector, as well as showing numerous videos and narrated Powerpoints that she creates herself using Camtasia and Jing. She provides feedback and conducts peer reviews via Google Docs and narrated Jing videos. She uses Microsoft comment features, electronic rubrics, cloud computing, and electronic publishing tools such as Infographics.
“My classroom set up determines what I can use – there’s not a whole lot I can do right now,” Hillary says. “I use (the smart monitor) a lot for feedback. I pull up a piece of text on the screen and I mark it up in front of the students. The students really like that because they see exactly what I’m talking about,” she says. She also uses technology for feedback to her students. “If it’s a really short piece, I like to use Jing,” she said. She takes a screen shot of the text and then marks feedback on the essay while explaining what she is doing aloud.

Mark, the youngest instructor from Ellis College, had the most support in learning to use technology in the classroom. He taught at an out-of-state community college ten years ago where course materials were pre-posted on Blackboard for all adjunct instructors. Today he uses many technologies in the classroom (e.g., videos, PowerPoint, the internet), in addition to the campus LMS. He also frequently combines several technologies at once: he collects video clips, articles, and essays and stores them in the cloud via the Dropbox app, downloads them during class on his iPad, and shares them with the class via the Elmo projector.

The two older instructors also use technology in the classroom. They, too, show internet video clips, use PowerPoint for lectures, and show sample essays via the projector. Penny has been teaching full-time at this district for 27 years. She taught one of the first computer-aided courses in the district. She narrates:

Way back in ’84 or ’83 we had an English Comp I where we used the computer, believe it or not. We had a computer lab and we used the old Word Star. Word Star was before Word Perfect. (It) was this word processing program that was DOS-based. It was supposed to be
simple but it was actually pretty complicated. So I had to spend quite a bit of time teaching them how to understand Word Star and then they’d turn in their assignments with those 5 ½” or 5 ¼ “ inch floppy disks.

Penny said her class met just a half dozen times in the computer lab and only when assignments were due. The course was offered four or five years. “Eventually we quit using that, but it was a cool thing,” she remembered.

Carol described changes during her 37 years of teaching, saying, “I know students respond more to technology than to old-fashioned teaching. I use YouTube, we do projects in the labs, [and] we do group searches. It helps with reinforcement of ideas…anything that peaks their interest. Let’s face it; some of what we teach is boring.”

All four instructors use the district’s LMS, called Angel, to varying degrees. Instructors across the district are mandated to, at a minimum, use an electronic grade book and post a syllabus on Angel. Except for Carol, all teach online via the learning management system (LMS) but also use several functions in their face-to-face classes. Penny said, “A lot of the things that we in my internet classes I do face-to-face.” She listed email, discussion boards, and access to handouts as examples. Hillary also puts all of her course materials online for her face-to-face students. She also uses the LMS for essay submission, grading via electronic rubrics, grammar quizzes, feedback, grade book, and peer review.

While most classrooms are not equipped with computers for students, three of the four instructors allow students to use cell phones and laptops for course-
related work during class. “I don’t like it (when students are not working on class assignments), said Mark, “but I’m not going to call them out about it.”

Penny also noted some disadvantages to allowing computers in the classroom. “Sometimes they’ll kind of giggle, and I’ll know they’re looking at some silly stuff instead of just taking notes…so usually I just tell the student ‘either stay on topic or put it in your backpack.’” She added, “The best is just being able to have something right now. That’s so handy. I encourage students to look up stuff when they have their smartphones or computers. I like the fact that it’s so immediate.”

While three of the instructors feel that the ability to use technology to immediately answer questions and provide feedback helps make a classroom more student-centered rather than teacher-centered, Hillary, the instructor who uses technology the most, had the opposite opinion about teaching in a computer lab. Because computers are fixed with little room to move around, she observed that, “My computer classroom students get to do more hands-on stuff, but it’s very difficult to do group and pair work in the computer classroom. That’s why I say it’s teacher-centered.”

While the two community college campuses have ample computers and labs, access for students’ access to computers at home can occasionally become problematic. However, the digital divide seems to be diminishing on both of these campuses. Access is not an issue as much as it used to be, said Hillary, noting that “More and more of my students are bringing laptops to class and actually, I encourage it. I would say maybe a third to one half are coming in with laptops. The
other thing I encourage is the use of cell phones when appropriate, like looking up definitions while they're reading."

Penny also noted the increase in student-owned technology: "Even 10 years ago most students seemed to own computers. Occasionally I will have a student or two who has some difficulty - usually a computer that crashed and they don’t have a back-up plan," she continued. “That tends to be it - goodness we have such an availability here on campus for computers and then I can’t believe how many students have their own laptops. So I don’t find it to be a big problem."

Outside of hardware, there are the occasional problems with internet access and knowledge about software. "Most (students) have the internet, but there is a difference. Students who have satellite internet can’t so some things (on the Angel LMS). Online students especially have trouble," said Mark. Hillary agreed that some students, usually younger ones, sometimes struggle with paying for the internet service, which may then be cut off from time to time.

The four agreed that non-traditional-aged students, those who have not grown up with electronics, occasionally struggle with software. Mark said, “Non-trads don’t know how to use them [their computers], but they have them.”

All four instructors also agreed that technology has positive and negative attributes. “Engagement is the big thing,” said Carol. “Anyway that peaks their interest is good,” she continued, “whether they (students) see this as the outcome or not.” Mark also emphasized the advantage that “they are more engaged [by] being able to pull things up right away and save them for later. Doing research right then and there. Video and audio support for different learners,” he continued.
Hillary said one of the benefits of teaching and learning with technology is that it makes students competitive in the job market. “If you don’t have basic technology skills, you’re not going far in your job,” she said. “It doesn’t matter what other skills you bring to your job; you’re going to need technology skills. You need the ability to navigate through technology, to understand the logic of it.”

The two older instructors saw both effects. “It certainly has its positives and negatives,” said Carol, the oldest instructor. “I don’t know if easiest is the best way. They don’t probe, they don’t comb through books anymore…it shortchanges you,” she said. Ease is a disadvantage for Penny, as well. “The biggest [disadvantage] is that it’s way too easy to copy and paste. So you wonder if they’re actually reading the materials. The question of plagiarism is large,” she said. Hillary named a couple of additional disadvantages. “It can be impersonal if you overuse it,” she said. “I personally have to learn to limit myself and focus on the quality of assignments. It’s too easy to put too much on there.”

The instructors also were asked about the type of support they need from their institutions. All four agreed that support is extremely important to being able to use technology effectively. Mark stressed, “I need to have reliable access to the internet, a place to save my work, an updated LMS.” Hillary concurred, saying, “We need to keep systems updated. IT needs to be responsive. We need access to the best and latest; we need training.” Training is also important to Mark, too, who said, “It seems we always get basic training only.” He added, “We need more discussion about what we need in the classroom. We need classrooms where every student has a computer.”
Finally, the instructors were asked if technology increases their workload. “I have to think it increases,” said Mark. “It’s still faster in composition to write on paper and write the grades in the grade book. And email takes up so much time.”

While it is clear that, regardless of age of experience, all four instructors use technology in English composition instruction, they think that they could do more to learn new technology. For that to happen, however, they need more time and more support from their institution to learn and implement new ideas, better equipped classrooms, and an equal level of access and knowledge on the part of their students.

RQ2. How do Iowa community college English instructors perceive the effectiveness of technology use in writing instruction and/or assessment?

All four instructors think that using technology does not improve the quality of a final writing project. They agree, however, that access to research materials and composition tools makes the composing process easier for students and that electronic tools also give students the opportunity to compose and communicate via other media in addition to print/paper.

The least tech-savvy instructor, Carol, recently tackled a rather ambitious electronic project. Her students wrote, filmed, and starred in a YouTube video about the definition of civility. (At this time, citizenship and civility were the common learning objectives district-wide during the year of this study). Carol said, “I knew they might get excited about doing a video.” She called the results “wonderful.” That her campus has a TV studio and the personnel to help students shoot and edit film helped out a lot.
Hillary also embarked on a project for a developmental writing course. Her students partnered with a similar class in the Marshall Islands. “We exchanged two essays through email and then we created audio files with feedback and posted them on YouTube. They sent us video files with a tour of their campus,” she explained. She said that some students have continued their friendships with Facebook chat and emails outside of the classroom.

The other two instructors also have required multi-media compositions. At the very least all four require graphics to be inserted into essays. They require class presentations using presentation software. In addition, Hillary has had students research a grammar skill and then create an instructional poster using Infographics software. They then hang the posters around the classroom for the duration of the semester.

Although all four instructors thought that the quality of compositions is not improved with technology use, they agree that technology facilitates the writing process, and it allows students to create multi-modal composition and to publish for wide audiences. All plan to continue to use technology in the classroom, but the four technologies addressed in the Horizon Report do not appear to be on any individual instructor’s own horizon.

RQ3. Which of the four technologies that the Horizon Report, 2012 Higher Education Edition suggest will become widely used in higher education instruction within one to five years (mobile aps, tablet computing, game-based learning, and learning analytics) do Iowa community college writing instructors currently have available and use in their classrooms?
None of the instructors use mobile apps or tablet computing regularly in their classrooms. While each acknowledged that students might use mobile phones and tablets to take photos for essays, read textbooks, or work on the LMS system, none think that these are being used extensively. In fact, because many Iowa high schools have one-to-one laptop programs, students are now more likely to bring a laptop into the college classroom. Penny observes, “I have one student in one of my classes that brings an iPad. One.”

Three of the four instructors own a tablet computer (iPad) and all four own a smartphone. Two of the instructors use mobile apps personally for work.

This particular community college district uses the Angel LMS. Angel does not have an app specifically for the platform, but offers an adjusted screen view that allows users to see an entire Angel page on his/her cell phone or tablet. Yet Penny, who teaches three of her five courses online, was unaware of this feature, saying she would do more grading and coursework if she could see an entire page at once. Hillary, the former distance learning director, pointed out this feature. None of the other three instructors were aware of it.

According to Hillary, “the problem with tablets is that it’s hard to type on them. But I use one. I had some educational apps that worked really well for my developmental students (vocabulary and grammar tools). Those were things that my daughter, who’s in sixth grade, was using, but they worked really well for my developmental students who struggle with spelling. There are all kinds of fun little apps that you can use.” She uses a voice-to-text app to record ideas for lectures and notes from meetings, and she also wants to use Facebook and other social media
more in the future. “I have a colleague who uses Twitter for Comp. It takes a certain kind of student. I’m not sure all of our students are at that point.”

The two younger instructors mentioned additional applications. Mark and Hillary personally use Dropbox and Pocket for cloud storage. Mark said, “I haven’t messed with too many (apps), but it’s definitely on my to-do list.”

However, none of the four instructors use games in their composition classes and, in fact, confess to having little understanding about gaming and learning theory. Hillary said, “I’ve read a little bit about it, but I don’t have a lot of experience. I think it’s still in its infancy. You need to be able to dedicate yourself to understanding it. It’s going to be difficult to use in composition. It’s great for problem-solving and things like that (but) I’m not sold on it for this specific discipline that I’m teaching. Mark had a better understanding of gaming theory but doesn’t use games in his classroom, either. “I think gaming is based on the premise of achievement, passing levels, borrowing techniques from games,” he said. “The only similar thing I’ve used is that for some quizzes students have to pass levels to move on to the next. They keep trying until they pass, and they can get a hint if they need it,” he added.

Hillary was the only instructor who seemed to have a true understanding of the uses of analytics in education. “Assessment reports in Angel are really powerful. They measure how much students are understanding certain concepts. I always use it for making sure what I teach is what the students are getting. If there’s a question that 75% of students are getting wrong, I know I need to do something. Every three or four weeks I run various reports of students’ performance on Angel.” Yet she acknowledges that her use of analytics is basic and doesn’t tailor curriculum
immediately to students’ needs, although she does create quizzes similar to those Mark describes (mastery levels, hints, and practice rounds).

The four instructors were asked for their final thoughts on the use of technology in teaching and learning English composition. “Sometimes technology is just so black and white,” said Penny about her online courses. She explains:

I try to… make my students feel like I know them, that they’re real people and I’m a real person too. I don’t want that technology to create a non-human environment. That occurs to me so much when I teach online. I think a person could be fairly non-responsive as a professor and they don’t see those students as real people. They’re just dots on the screen, and I think it can be very negative students in helping them learn.

After 37 years in the field, Carol said would like to see new hires who are more technologically adept: “I’ll be gone in a year or two and I hope they hire somebody to replace me with a lot more technical skills because I do think it’s important. However, having said that…I don’t think that everything we have now is bad. I don’t think we need to have virtual classrooms where everything is technology…I think it can be overused. Someday I’m going to have someone operating on me [doing surgery] who learned to operate on the internet. That bothers me a little bit,” she said.

The newest instructor, Hillary, had a slightly different viewpoint. “I really firmly believe in being plugged in; especially to some of the groups where teachers are using technology. I’m a member of several LinkedIn groups (and) my Twitter account
is my professional account. I’m a member of several Facebook groups that are specifically about … teaching with technology because we get in our little box and it’s hard to get out of it and [these groups] help us to see what others are doing.”

Mark notes some negative implications. “The problem is when everybody doesn’t have equal access or ability. We have to go to the least common denominator. By the time we have enough research on one, we’re on to the next technology and we’re left behind again.” His remarks may help explain why the four Horizon Report technologies have been slow to diffuse in Iowa community college English instruction.

The next section compares the results of the survey and the interviews.

Discussion of the Results

The findings show that while Iowa community college English instructors almost universally use technology in writing instruction, they do not widely use the four technologies that the Horizon Report predicts are likely to enter mainstream use in higher education instruction in the near future. In short, although a variety of technologies are now being used, it is difficult to predict which new technologies will emerge as most useful in teaching writing competence.

Use of technology for writing instruction and/or assessment

The survey and interview results show that community college teachers and students use a significant number of technologies during the composition process. In 1999 NCTE recognized the need to “weave technology into the curriculum” (“The NCTE Definition”). Five years later the College Conference on Composition and
Communication called for classes and writing programs that require students to compose digitally (CCCC, 2004). It seems that Iowa community college teachers are fully on board with these recommendations. More than 90% of survey respondents and all four interviewees said that technology use was very important to their instruction. The survey respondents indicated one to 30 years of full-time experience, 23% had less than seven years of experience, 40% had 7-15 years, and almost 38% has more than 15 years. The number of years teaching, however, does not appear to have a bearing on technology use.

A large majority (97%) of the combined sample require students to conduct research on the web (weaving technology into the curriculum), and use computers for drafting and editing (i.e., composing digitally). The National Council of Teachers of English also recommends that students learn to create multi-modal compositions (NCTE 2008). This practice seems to be commonplace across the district. All four interviewees engage students in electronic projects, including videos, electronic posters, and the use of graphics in essays. Some survey respondents also asked students to do audio and visual projects.

Less than one-fourth of the survey respondents said their students provide electronic document-based peer feedback while three interviewees said they do some electronic peer feedback. These instructors also teach online, however, and may have been thinking of these courses when answering this question. Experience online might also account for the fact that three of the four interviewees also give electronic feedback to students, while about half (57%) of survey respondents do the same.
No distinction was made in this study between the use of technology in face-to-face and online courses. However, it seems that students in general have ample access to technology. At one time there was concern that a digital divide might widen the achievement gap between students who did and did not have access to computers at home and in school. Computer access seems to be a non-issue today. Many see that computers are widely available on campus, and most students now own computers. The instructors indicated great concern about students’ ability to use the technology available to them. Almost 47% of the survey respondents felt students are not proficient in navigating technology. The four interviewees agreed, with one pointing out that while non-traditional-aged students own personal computers, they often do not know fully how to use them to serve their needs.

**Effectiveness of technology use in writing instruction and/or assessment**

While respondents and interviewees agree that students use a variety of technology for many purposes during the composing process, they differ in opinion about the effectiveness of technology beyond the composing process.

The survey respondents were asked whether or not technology supports student success during the six stages of the writing process, if technology can be credited with improvements in the seven areas of the finished writing product, and if technology facilitates four areas of learning in general. The interviewees were asked to describe the advantages and disadvantages of using technology in the classroom.

Both survey (about three-fourths) and interview respondents (100%) agreed that technology can support students in routine tasks, including editing/correctness,
fact-checking, and formatting. They also agreed that instant access to information is a strength. The interviewees spoke about the benefits of conducting electronic research in the classroom and of allowing students to use laptops/tablets during class. The survey respondents said technology facilitates the research process, and attribute improvements in evidence/support in the final products to technology.

Although there is consensus that technology is useful in the composing process, survey respondents and interviewees diverged somewhat in their opinions about the efficacy of technology in helping students improve the final writing products. Survey respondents suggest that original ideas are needed first; the majority said that thesis development and depth/creativity are not enhanced by technology. However, a slight majority saw improvements in other aspects of the writing product (e.g., organization and clarity, in addition to support and correctness), while interviewees thought that technology does not produce better results.

Seventy percent of survey respondents said that technology helps engage and motivate students; the interviewees also were enthusiastic about technology use. “Students respond more to technology than they do to old-fashioned teaching,” according to Carol. Mark adds that, “The advantage of technology is that they [students] are more engaged, although they are not as impressed [with technology is the classroom] as they were before.”

More than three-fourths of the survey respondents thought that technology helps students work more independently; the interviewees said the same. For example, Mark explains that electronic tools allow students to learn formatting, such as MLA citations, on their own. “I don’t have to spend as much time going through
templates. Now I spend time on credibility [of sources] and ask them to do more on their own.”

Sixty-three percent of survey respondents are of the opinion that classroom technology helps improve overall academic performance. The interviewees’ discourse seems to abide by that opinion. Hillary mentioned, for example, that the ability to refer to classroom materials online (e.g., lecture Powerpoints) helps students succeed. “It’s not that they can’t get it in class, but it helps to have access to everything,” she said.

Survey respondents were least convinced about the ability of technology to help students think creatively. The interviewees were not asked this question, but none of the comments they volunteered when discussing the advantages of technology mentioned enhanced creativity.

Finally, the survey respondents and the interviewees were asked to detail the most effective use of a specific technology in the composition classroom. Here, the emphasis was not on the quality of student writing products, but on the delivery of instruction and assessment. Both groups cited enhanced communication between students and with instructors through online channels. However, Carol wants to temper this access: “They get enough of that [electronic communication] outside the classroom. In the classroom I want us to communicate face-to-face as much as we can.” All mentioned the benefits of posting electronic course materials to make them accessible anytime, anywhere (thereby saving paper, as well). Some discussed electronic mark-ups of essays as being advantageous over hand-written feedback. The interviewees described the ability to create engaging multi-modal projects (e.g.,
creating video, collaborating with a class overseas) as a particularly useful benefit of technology, while survey respondents were more likely to mention the value of instructional software tools such as the plagiarism detector Turnitin, writing diagnostics (Writer’s Workbench) and the use of video from Youtube in the classroom.

Not all survey respondents were enthusiastic supporters of technology. A survey respondents said, “Technology does absolutely NOTHING in the classroom,” and one said that, “English was being taught perfectly well before computers came along.” An interviewee concurred: “I don't know if easiest is the best way.”

These responses, however, were in the minority. While a few instructors are not completely sold on the benefits of technology, everyone would like to learn more about new technology. The interviewees agreed, with one instructor nearing retirement saying that she hopes her successor is well versed in the best uses of technology for English instruction. The overall willingness to use and learn technology suggests that Iowa community college instructors are not laggards in the adoption of new technological tools.

The use of the four *Horizon Report* technologies

When the New Media Consortium published its higher education *Horizon Report*, in early 2012, it suggested that mobile apps and tablet computing would be widely adopted in higher education instruction within the year. The survey and interview results suggest these technologies are beginning to make inroads, but are not yet widely used in Iowa community college English instruction. The interviewees use a few apps and tablets in their professional duties, but observe that very few
students rely on apps to conduct research, write, or revise essays. Most of the survey respondents also do not use mobile apps in instruction and were not aware of any educational uses either. These results support the findings of a 2009 Educause survey that found that while 50% of undergraduate students own internet-capable handheld devices, only 11% use their devices to access apps for course-related activities (“Universities Log On” 36). In short, it does not seem likely that apps will make inroads in English instruction within a one-year timeframe.

As of early 2013, the newest Horizon Report (see page 82) was in the preview stage and again lists tablet computing as requiring a year before widespread adoption. The results of the present study, however, indicate that this scenario is unlikely. Only a few instructors mentioned seeing students using a tablet in the classroom. These results support a 2012 Pew study which found that the largest ownership of tablets was in the 30-40-year-old demographic, not the traditional college freshman/sophomore age group. One of the instructors interviewed believes that because many Iowa high schools issue laptops to all students, these students prefer to purchase laptops for college because they are familiar with the technology.

Several Iowa high schools now issue tablets instead of laptops, however. A number of small public and private Iowa high schools issuing iPads were joined by 800 students at Bettendorf High in the fall of 2012 and 1,300 Johnston students this January (JohnstonPatch, Quad City Times). If the number of high schools offering tablets instead of laptops continues to grow, Iowa community college educators
might see a corresponding growth in the number of tablets in post-secondary classrooms.

The two additional technologies predicated to become widespread within three years are not frequently in use, either. Both interviewees and survey respondents knew little about game-based learning theory and even fewer use games in their English composition classrooms. The responses indicate that only basic learning analytics are being used in most Iowa community colleges.

As far back as 2005, the Horizon Report was predicting that “educational gaming” would be widely adopted in higher education instruction within three to five years (NMC, 2005). “With new technologies for creating complex, interactive environments, immersive educational games are just over the horizon,” the report said. Seven years later the 2012 report and 2013 preview report continued to suggest that gaming would be widely adopted as an instructional tool. The results of the present study suggest that Iowa community college English instructors disagree. None of the four interviewees use game-based learning, and each confessed to knowing little about games pedagogy. Over half of the survey respondents were not familiar with the educational uses for games. Even those with some familiarity with the implications of educational gaming do not use games in English composition instruction. The New Media Consortium continues to find exciting possibilities in game-based learning, reporting that “this topic has gained considerable traction. . . as games have proven to be effective learning tools. . .” The findings of the current study indicate, however, that games have yet to be used in the teaching of writing at
the post-secondary level. To do that, according to Hillary, “You need to be able to dedicate yourself to understanding it.”

Similarly, learning analytics made the 2013 NMC higher education three-to-five year adoption list. Yet the respondents profess to know little about the educational uses of this emerging technology. Almost two-thirds of the survey respondents and three of the four interviewees said they do not use and are not knowledgeable about the potential of learning analytics. About one-third of survey respondents were familiar with education uses of learning analytics, but only one uses it in instruction. Similarly, only one of the four interviewees understands the potential of learning analytics to tailor instruction. It must be noted, however, that Hillary was previously an online instructional designer and is intimately knowledgeable about the capabilities of her institution’s LMS.

Although optimistic about the adoption of learning analytics, the *Horizon Report* acknowledges the complex tasks of analyzing data from both explicit and tacit student activities will be difficult. “Still in its early stages, [emphasis added] learning analytics is an emerging scientific practice that hopes to redefine what we know about learning by mining the vast amount of data produced by students in academic activities,” the preview report says (NMC, 2013).

In summary, Iowa community college instructors appear to widely use technology in English composition instruction, citing the benefits of technology use in improving various aspects of the invention process and the final writing product. The results do not lend support to the New Media Consortium’s Horizon Reports that
predict which emerging technologies will make significant inroads in composition instruction in the near future [emphasis added].

The next chapter summarizes the findings of this study, examines the implications of the findings to Iowa community college English instructors, analyzes the strengths and limitations of the study, and lists possible topics for further research.
CHAPTER 5
CONCLUSIONS

Summary of Findings

A survey of and interviews with Iowa community college English instructors were conducted to find out which technologies English instructors employ in teaching, which their students use, and how effective the instructors perceive these technologies to be. In addition, survey respondents and interviewees were asked if and how they use four emerging technologies that the New Media Consortium predicts will become widespread in U.S. higher education.

The survey results indicate that community college English instructors widely use a variety of technologies in the classroom. Over 90% said technology is important to them as a teaching tool. The most common use was to draft and edit documents, and to conduct research electronically.

The respondents also saw technology as having a positive impact on the finished writing product. Specifically they saw technology helpful in various steps of the writing process, especially researching (89%) and editing (almost 78%). In addition, more than 50% felt that technology helped students effectively navigate the invention, composing, and revising steps. A majority mentioned that technology helps students format the finished product and achieve overall correctness. Technology also enhanced peer collaboration.

There was less agreement, however, that technology improves other aspects of the finished writing product. Slightly more than half of the survey sample indicated that technology helps improve organization, clarity, and support. To many, thesis
development and depth/creativity are not enhanced by technology use. The interviewees agree with this assessment.

The survey respondents and interviewees concurred that, in general, technology use can engage and motivate students, improves student performance, and assists them to work more independently in the classroom. However, few assert that technology helps students think more creatively.

Each year, the New Media Consortium, a conglomeration of U.S. colleges, universities, and public and private organizations, publishes *The Horizon Report*, which analyzes the use of emerging technologies in higher education. The report lists six technologies which are likely to become widely used in higher education: two within the coming year, two within two to three years, and two within four to five years.

None of the four technologies the report expects to be adopted within three years is in widespread use in Iowa community college English classrooms today. The findings of the present study suggest that none of the four are poised for adoption in the very near future. The respondents see the applicability of tablets and mobile apps only for personal use, and for limited use for grading and organizing course materials outside of the classroom. In addition, the majority does not use the four identified technologies for instruction, and are not aware of the educational uses of the mobile apps, game-based learning, or learning analytics.

In summary, the survey and interview findings indicate that Iowa community college English instructors widely support the use of technology to teach writing. They agree that technology can help improve some aspects of the finished product,
such as correctness and formatting. They also said that technology keeps students engaged and motivated. However, many indicated that technology does not help students more effectively meet the larger goals of effective writing, including thesis development and creativity.

**Implications of the Study**

The results of this study have several implications for today’s Iowa community college English instructors. First, while the majority of instructors are frequent users of technology in the classroom, few were aware of the educational uses of the four technologies detailed in the *Horizon Report*. In this report, each section discusses a particular technology and ends with several examples of how the technology is being applied in higher education institutions. None of the 22 cited uses for mobile apps, tablet computing, gaming, and learning analytics were for English composition instruction. It would be helpful, therefore, for pedagogy experts to offer models of how these emerging technologies might be used in post-secondary English classrooms. In the absence of content relevant to composition instruction, then perhaps Iowa English instructors could create their own online community, or partner with other community colleges across the nation, to share best practices.

Second, the results suggest there is still a need to train community college instructors in the best uses of technology, especially cutting edge ones. IT departments need to provide, train, and offer support as newer technologies become available, many respondents recommend. The interviewees think their institution lags in keeping current with emerging tools. One said, “By the time we have enough research on one technology, everyone’s on to the next technology and we’re left
behind again.” Although they are not using emerging technologies, instructors indicate willingness to learn more about educational uses for new technology.

The Iowa Department of Education requires that community colleges formulate a professional development plan, called Quality Faculty plans, for all full-time faculty. Continuous training on emerging technologies would enable faculty to remain current in effective instructional techniques. As one interviewee said, “We never get more than basic training; we need to have conversations about what we actually need in the classroom.”

Third, the findings show that although the vast majority of students now have access to computers, many lack the skills to take advantage of software programs. At one time, educators were concerned about the negative influence of the “digital divide.” The results suggest no shortage of computers on Iowa community college campuses. Even non-traditional-aged students and students from lower socio-economic strata now have greater access to personal computers. A 2010 Pew report says that just 78% of community college students have access to broadband service at home. English instructors, however, think that students almost universally have internet access at home as well as on campus. The respondents also report high student access to mobile devices.

The interviewees think that although students have access to computer hardware, they are not equally proficient in using them. One said, “The problem is that we have to go to the least common denominator.” One of the survey respondents wrote, “We started a computer boot camp class for our returning adult students who have technology literacy issues. Their lack of proficiency in these
[software] areas has really hindered their success in college so we’re trying to help them catch up.” This suggests that community colleges should spend more on providing access to software (purchase, training, technical support) rather than on the purchase and maintenance of hardware.

**Strengths and Limitations of the Study**

This study employed two research methods to determine the uses and perceptions of the efficacy of technology in the English composition classroom: a survey of Iowa community college English instructors via email and face-to-face interviews with English instructors to obtain a more nuanced understanding of why and how technology is used in instruction.

The strengths of this study included:

- An attempt was made to survey 100% of the 149 full-time and part-time Iowa community college English composition instructors with available email addresses. Email addresses came from a mailing list sent to all instructors annually to invite them to a conference held state-wide for many years. The list is updated annually and believed to reach all community college English instructors in the state. Although new hires may have been missed, the survey should have reached almost all current instructors.

- Both quantitative (email survey) and qualitative (four interviews) methods were employed in an attempt to gather not only quantifiable information about the uses and effectiveness of technology in English instruction, but also more insight into the value of specific assignments and software
employed in the classroom, and a more nuanced understanding of why and how instructors use technology in instruction.

- The study was conducted in the month of November, which was after the press of midterm exams and grading, but before the rush of the end of the semester. It was hoped that sending the survey during a relatively slower time for instructors would result in the greatest response rate possible. The second request for responses set mid-November deadline, just before instructors had Thanksgiving break and returned to prepare for final exams.

- The quantitative portion of the study was conducted via an electronic survey rather than a paper survey, which means that instructors did not have to package and mail the instrument back to the author, resulting in faster collection of responses and possibly a greater response rate than a paper/U.S. mail survey.

Some limitations did exist in the study, however. Some drawbacks became apparent during the course of the study:

- The electronic survey tool, Survey Monkey, limited the number of questions to ten. It may have been preferable to pay for a premium service in order to ask more questions. A premium subscription would have also provided correlation tests that could have determined if, for example, younger instructors tend to use more instructional technology or specific types of technology, or if those who report the most willingness to learn new technology are also those who use one or more of the four Horizon Report technologies. The initial survey that this author planned to send had a total of 20 questions. The Survey
Monkey website doesn’t mention a 10-question limit, which wasn’t discovered until the survey was actually being prepared online for mailing.

- In addition, the response rate (22%) was lower than anticipated. A high response rate, generally considered to be 30% or more for an online survey (University of Texas), would have ensured that the survey was representative of the target population. The University of Texas at Austin Institutional Assessment Resources web site asserts 7-10 days is an adequate amount of time to allow for electronic survey responses, which is within the time frame of this survey. Therefore, it is not likely that more time would have ensured a higher response rate.

- There is also a possibility that the results were not representative due to a lower than average response rate from instructors who are not “digital natives” and use technology less frequently. Any instructor who does not teach with much technology might have been less inclined to respond to a survey about technology. While this is purely conjecture, the author received an email reply from one instructor asking that a paper copy of the survey be sent to her via traditional mail.

- One final limitation is that the face-to-face interviewees were not asked about the benefits of technology in helping students with various stages of the writing process, with improving various elements of the finished product, or with supporting learning, motivation, and creativity in general. Instead, they were asked simply to describe the benefits of using technology in English instruction. Therefore, it was not possible to compare and contrast detailed
responses about the benefits of technology from both the quantitative and qualitative respondents.

**Recommendations for Further Study**

Due to the rapidly changing nature of technology in instruction, further study about the uses and effectiveness of technology in the English composition classroom might reveal significant differences in technology use status over time. This need calls for more longitudinal studies (e.g., those that employ time series analysis) to get a more accurate picture of how technology use has progressed over the years. As the New Medium Consortium updates its list of emerging technologies for higher education, it will be important for future studies to track the actual diffusion of these technologies in English composition classrooms. New technologies are constantly added to the annual list, including flipped classrooms (lecture content is delivered outside of the classroom via technology and class time is spent doing hands-on activities or traveling outside the classroom for instruction) and massively open online courses (MOOCs) or web-delivered courses that students can take from anywhere in the world, usually without a fee (although fees are charged if the student wishes to earn credit toward a degree). Researchers may explore each of these emergent technologies to map their diffusion patterns and determine the reasons for their adoption or rejection.

Future studies could also aim to determine the most effective and engaging apps for English composition instruction. Which of these most effectively engage students in the classroom? Which could help students most during the composing and publishing processes? Which could help ease the tasks of teaching (grading,
giving feedback, organizing materials, aiding in professional development)? A survey of best practices could identify a list of tools for English composition instructors to share. Including high school instructors in the inquiry could be more useful.

Researchers could examine the use of technologies in face-to-face, online, and hybrid English composition classes: Which seem to be more effective? Which are students more satisfied with? Which technologies are used in both methods of instruction? What kinds of training and support do online instructors receive? Are the numbers of online English courses growing and what are the benefits and consequences? How do these numbers at community colleges compare to four-year institutions? Three of the four instructors interviewed for this study also teach online and/or hybrid courses and some of their responses to survey questions were applicable to online courses only.

Finally, the results suggest mobile apps, tablet computing, game-based learning, and learning analytics are not yet widely used in the Iowa community college English classroom. Studies that document best uses from peer colleges, and institutional support for purchase and training in using new technologies, could lead to enhanced use of technology in the Iowa community college English composition classroom.
WORKS CITED


APPENDIX A
INFORMED CONSENT FORM: SURVEY
(Sent as the text of an email)

Hello all,

I’m glad that NIACC has offered to host the Roundtable again this year! My name is Rebecca Peterson and I am an English/Communications instructor at Ellsworth Community College. I would like to conduct a survey for a graduate course that I am taking, and I am asking for your help. I’ll also be sharing the results of my study at the Roundtable next spring.

Computer technology is pervasive in Iowa’s community college English composition courses, yet little is known about the influence of technology on student achievement. I would appreciate your help, as a fellow instructor, in gathering information about the effectiveness of technology in your courses.

Note that your participation in this study is voluntary and you have the right to withdraw from the study at any time. The survey software will share only your responses and not your identity or email address. You may skip any questions that you do not wish to answer. It would be very helpful if you would complete the questionnaire by Nov. 16.

Please take 10 minutes to complete an online survey. You can access the survey at http://www.surveymonkey.com/s/9KC9TF9

Clicking on and submitting the survey means you are giving your permission for me to use your responses in my study. Please print a copy of this email for your records, if desired. You will not receive any direct benefit from participation. If you need additional information about this study and the ISU research review process, please phone or email me at the contact information below, or contact Donna Niday, Associate Professor of English, at ISU (phone (515) 294-9981). If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011 and refer to IRB#12-487.

Once again, thank you very much!

Sincerely,

REBECCA PETERSON
English/Communications Faculty
Ellsworth Community College
Iowa Valley Community College District
1100 College Ave. • Iowa Falls, IA 50126
APPENDIX B
QUESTIONNAIRE: SURVEY OF TECHNOLOGIES IN IOWA COMMUNITY COLLEGE ENGLISH COMPOSITION INSTRUCTION

1. Overall, how important is computer technology to you as a teaching tool?
   - Very Important - I use technology daily
   - Important
   - Neutral
   - Somewhat Important
   - Not Important

2. Which technologies do you use in your Writing/Composition courses? (check all that apply)
   - Electronic class discussions
   - Brainstorming tools
   - Researching through the Internet or World Wide Web
   - Drafting
   - Editing tools such as spell checkers or grammar checkers

3. Which of the following technologies do you use in your Writing/Composition courses? (check all that apply)
   - Peer collaboration through:
   - Feedback/assessment through:
   - Electronic publishing through:
     - Document-based annotation
     - Blogs/wiki
     - Synchronous chat (instant messaging)
     - Email or asynchronous chat (electronic discussion forums)
     - Audio broadcasting/podcast
4. Over the past year, to what extent do you attribute your students' success in learning the writing process to any of the technologies you use in your classroom?

<table>
<thead>
<tr>
<th>Element</th>
<th>Significant improvement</th>
<th>Some improvement</th>
<th>No improvement</th>
<th>Negative impact</th>
<th>Significant negative impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Researching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer collaboration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revising</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Editing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Do you attribute improvement in any of the following elements of your students' finished essays/products to one or more of the technologies you use in your classroom?

<table>
<thead>
<tr>
<th>Element</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization/Coherence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correctness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarity/Style</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence/Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depth/Creativity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Format</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. To what extent do you agree/disagree with the following statements?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technologies encourage my students to think more creatively.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Technologies help my students to work more independently.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Technologies help keep my students more engaged and motivated.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>My students' academic performance improves with the use of classroom technologies.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Most of my students are proficient in navigating computer hardware.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I am willing to learn new technologies if instruction/support is provided.</td>
<td>○</td>
<td>○</td>
<td>I</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
7. The 2012 Horizon Report predicts that MOBILE APPS (niche applications for smartphones and tablets, such as iAnnotate or Evernote), TABLET computers (mobile devices that blend features of laptops, smartphones and gesture-based computing), GAME-BASED LEARNING (games that teach critical thinking, problem-solving, collaboration, simulation) and LEARNING ANALYTICS (analyzing performance data to assess academic progress, predict future performance and tailor individual curriculum) will become prevalent in higher education in the near future. Do you use any of these technologies in your English Composition Instruction?

<table>
<thead>
<tr>
<th>Technology</th>
<th>Yes</th>
<th>No, but I am familiar with educational uses for this technology</th>
<th>No, because I am not familiar with educational uses for this technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Apps</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Tablet computers</td>
<td>○</td>
<td>■</td>
<td>○</td>
</tr>
<tr>
<td>Game-based Learning</td>
<td>○</td>
<td>◼</td>
<td>■</td>
</tr>
<tr>
<td>Learning Analytics</td>
<td>◼</td>
<td>○</td>
<td>◼</td>
</tr>
</tbody>
</table>

If yes, please describe how you most commonly use each of the above in your English Composition instruction.

8. Please describe your most effective use of technology in teaching English Composition in the past 6 months.
9. Please provide the following demographic information. Check a box for both size and location of your community college.

<table>
<thead>
<tr>
<th>Your community college setting</th>
<th>&lt;3600</th>
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10. Last question! Please share a few demographics about you. Check one answer in each row (I know the question is set up oddly, please excuse).

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<th>Master's degree</th>
<th>Doctorate</th>
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Powered by SurveyMonkey
APPENDIX C
INFORMED CONSENT FORM: IN-DEPTH INTERVIEWS

I am gathering the information about the effectiveness of technology in English composition courses for my work at Iowa State University. I will be asking you a series of questions related to the use of technology in your classrooms.

Our conversation will take approximately 30-40 minutes. You will be identified by pseudonym in the resulting study, along with your responses. Note that your participation in this study is voluntary and you have the right to withdraw from the study at any time. Feel free to skip any questions that you do not wish to answer.

If you need additional information about this study and the ISU research review process, please phone or email me at the contact information below, or contact Donna Niday, Associate Professor of English, at ISU (phone (515) 294-9981). If you have any questions about the rights of research subjects or research-related injury, please contact the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office for Responsible Research, Iowa State University, Ames, Iowa 50011.

Your signature indicates that you voluntarily agree to participate in this study, that the study has been explained to you, that you have been given the time to read the questionnaire, and that your questions have been satisfactorily answered. You will receive a copy of the written informed consent prior to your participation in the study. If you decide to participate in this study there will be no direct benefit to you, but you will help provide a picture of technology use in community colleges.

Participant’s Name (printed) ______________________________________________________________

____________________________________________________________________________________

Participants Signature) (Date)
APPENDIX D
QUESTIONNAIRE: IN-DEPTH INTERVIEWS

Questions for Qualitative Interviews

General Technology Questions
1. Describe how you started using technology.
2. What specific kinds of technology have you used in your classroom?
3. What do you think are the advantages of using technology in the classroom?
4. What do you think are the disadvantages of using technology in the classroom?
5. What types of support do you need from your institution in order to use technology more effectively in your courses?
6. Do you teach English composition courses in a computer classroom or one equipped with wireless access? If yes, would you describe your classroom as teacher centered or student centered? Explain.
7. Do you require multi-modal compositions in your classroom? If yes, describe the tools used and results of one assignment.
8. Describe how new technologies have changed your English composition pedagogy.
9. Describe the issues of access to technology that you’ve noticed recently among your students.
10. Do you think access to new technologies has helped to decrease or increase your work load? Explain.

Mobile Apps
Mobile apps are small low-cost (or free) niche software applications for mobile phones and tablets. Examples include neu.annotate and scribble.

1. Has your institution developed its own mobile application? If yes, describe the functions.
3. Do you use any type of mobile application in your English Composition classroom? If yes, describe.
4. Do your students use any mobile applications to capture or edit multi-media, to read, or to compose assignments in your classroom? If yes, describe.
5. Do you give feedback on essays via hand-written marks or do you use electronic mark-up? If electronic, describe the type of feedback your give.

Tablet Computing
Tablet computers, such as the Apple iPad, combine the features of laptops and smartphones with always-connected Internet and mobile applications. They are easily portable, feature much larger screens than smartphones and have gesture-based interfaces.
1. Have you noticed an increase in the number of students bringing tablet computers to class in recent years? If yes, describe.
2. Do you allow students to use tablet computers in your classroom? For what purposes? If yes, have you noticed changes in the classroom environment? Describe.
3. Do some of your students access electronic textbooks in lieu of hardbound books in your classroom? Have you noticed a trend toward greater use of electronic books? Describe.

**Game-Based Learning**
Game-based learning theories describe the impact of game play on cognitive development. Games might be goal-oriented, social, role-playing, collaborative problem solving, simulations, etc.

1. Describe your understanding of gaming theory.
2. The New Media Horizon Report for higher education says that “game-based learning reflects a number of important skills higher education institutions strive for their students to acquire: collaboration, problem solving, communication, critical thinking, and digital literacy.” Do you agree? Explain.
3. Describe one activity in your English composition classroom that uses gaming theory.
4. If you use gaming activities, describe the benefits of gaming in your composition courses.

**Learning Analytics**
Learning analytics refers to the interpretation of a wide range of data produced by and gathered on behalf of students in order to assess academic progress, predict future performance, and spot potential issues. The goal of learning analytics is to enable teachers and schools to tailor educational opportunities to each student’s level of need and ability in close-to-real time. A one-dimensional example would be a clicker system where the instructor immediately adapts class lecture to the results of clicker answers.

1. Describe how you use the “reports” function of your learning management system.
2. Which type of report do you feel is most beneficial to you and why?
3. Do you use a clicker to assess in-class understanding of concepts? If yes, describe your use of the results.
4. Do you use the learning analytics of a commercial vendor, such as McGraw Hill Connect?
5. Do you tailor curriculum for individual students based on the results of either clicker, LMS, or commercial analytics reports? Describe.

**Closing**
1. Are there other things related to teaching and learning with technology that you’d like to discuss?
APPENDIX E
IRB EXEMPT LETTER

Date: 10/4/2012
To: Rebecca Peterson
1100 College Ave
Iowa Falls, IA 50126

CC: Dr. Donna Niday
431 Ross Hall

From: Office for Responsible Research

Title: Survey of Technology Use in Iowa Community College English Composition Courses

IRB ID: 12-487

Study Review Date: 10/3/2012

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

- You do not need to submit an application for annual continuing review.

- You must carry out the research as described in the IRB application. Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. Only the IRB or designees may make the determination of exemption, even if you conduct a study in the future that is exactly like this study.

Please be aware that approval from other entities may also be needed. For example, access to data from private records (e.g., student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.