

THE EFFECT OF AN ONLINE ACADEMIC INTEGRITY TUTORIAL ON  
STUDENT PERCEPTIONS OF CHEATING

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A Dissertation

presented to

the Faculty of the Graduate School

at the University of Missouri-Columbia

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Submitted in partial fulfillment of the requirements  
for the degree of Educational Doctor of Education

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by

ROBIN EUGENIA GREBING

December 2015

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The undersigned, appointed by the Dean of the Graduate School, have examined the dissertation entitled

THE EFFECT OF AN ONLINE ACADEMIC INTEGRITY TUTORIAL ON  
STUDENT PERCEPTIONS OF CHEATING

Presented by  
Robin Eugenia Grebing

A candidate for the degree of Doctor of Education

And hereby certify that in their opinion it is worthy of acceptance.

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Dr. Paul Watkins

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Dr. David Stader

---

Dr. Lisa Bertrand

---

Dr. Simin Cwick

### **Acknowledgements**

For my amazing daughter, Megyn, who saved me. If you can dream it, you can do it. I love you more than peanut butter M&Ms.

Thank you to my husband, Dave. You are the best husband ever.

To my Saturday writing buddy, Tammy Brotherton. We did it!

To Kelli Burns and Joyce Johnson. Wow. I am the luckiest person in the world to have friends like you. I think the next few (hundred) rounds are on me.

To all my family and friends who believed I could do it. You know who you are. I appreciate all the words of encouragement and the occasional push.

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### **Abstract**

Many college faculty members expect more cheating to occur in online classes than in face-to-face courses. This opinion stems from the belief that it is easier for students to cheat when material is delivered online and the instructor is not physically present to deter cheating. To many, it seems reasonable that online courses provide students with greater opportunities to cheat. In one study, the researchers found 64% of faculty and 57% of students thought cheating in online classes would be easier than in face-to-face courses (Kennedy, Nowack, Raghuraman, Thomas, & Davis, 2000). In contrast, the study revealed that students who had taken one or more online courses were less likely to believe it was easy to cheat in this environment.

A review of the literature on academic integrity revealed wide disparity in the prevalence of cheating in college and university settings. For example, a 2009 study reviewed 60 years of plagiarism research and found the rate of student cheating has been increasing between 1941 and 1992 (Chao, Wilhelm, & Neureuther). In contrast, other recent studies have found rates of cheating to be lower than 1941 figures. One fact seems to be clear, however, students who cheat in face-to-face classes are more likely to cheat in online courses, too (Dillé, 2011; Lanier, 2006). On the other hand, delivery type is less of a predictor of cheating behavior than other factors. Part of term, major, and classification were significant predictors of student cheating behaviors (Mastin, Peska, & Lilly, 2009; McCabe, 2005; Şendağ, Duran, & Fraser, 2012). Many studies have focused on the ability of students to recognize cheating and the effect of institutional policies as a deterrent. Holt, Fagerheim, and Durham (2014) found educating students about what constitutes plagiarism improves their ability to identify and avoid such behaviors.

Similarly, in numerous studies, McCabe and colleagues found that an institutional honor code establishes a culture that is less tolerant of cheating and, therefore, acts as a significant deterrent to student cheating (McCabe, 2005; McCabe & Pavela, 2000, 2004; McCabe & Treviño, 1996). There has been very little research on the effect of online tools, such as plagiarism tutorials and academic integrity tutorials, on changing student cheating behaviors and perceptions.

The purpose of this quantitative study was to determine the effect of an online academic integrity tutorial on students' perceptions of cheating at a large sized community college in an urban area in the Midwest. Students enrolled in at least one online class participated in a survey measuring their attitudes about cheating before and after completing an online academic integrity tutorial. The tests used to analyze the data to address question one included a dependent means *t*-test, an ANOVA, and an independent means *t*-test. A Box-Whisker Plot was created for question two and a Scatter Plot was created for question three to visually inspect the data and determine if a Pearson Correlation should be conducted. Neither graphs revealed a correlation.

The analysis revealed that an online academic integrity tutorial had no significant effect on student perceptions of cheating. However, further analysis on the 29 types of cheating behaviors showed significance for five of the items. The sample size was too small to successfully analyze the effect of major and age on the change in student perceptions of cheating. The variable gender showed no effect, but there was a significant effect between classification groups. Freshmen were likely to experience a change in their perception compared to other classifications.

A student's knowledge of the institution's academic integrity policies did not correlate to perceptions of cheating. Similarly, there was no correlation between student perceptions of cheating and actual incidents of self-reported cheating. Nevertheless, there was a positive gain in the mean scores from pre- to post-survey and additional research of the effect of an online academic tutorial is needed.

Keywords: academic honesty, academic integrity, cheating, distance education, online courses, plagiarism

## Chapter 1: Introduction

The importance of original work was recognized in America before the shot heard round the world sparked the Revolutionary War, and notable historical figures in American history sought to prevent plagiarism before the United States was founded. In fact, all but three of the original 13 colonies passed copyright laws to protect intellectual property (Lynch, 2006). In 1783, Noah Webster published the first American textbook known as the Blue-Backed Speller because of its blue cover. Webster was fiercely protective of his writing and traveled to many of the thirteen colonies to seek copyright protection for his book, which eventually sold over 100 million copies (Lynch, 2006; “Noah Webster History”, n.d.). When the Revolutionary War was won and a federal government formed, Webster was among many academics and writers who solicited Congress for protections for intellectual property. Congress responded by passing the first federal copyright law in the United States in 1790, less than two years after the Constitution was ratified. Protecting intellectual property was viewed as so important to promoting education and learning that George Washington included it in his first State of the Union speech (Lynch, 2006).

While concerns about cheating are as old as Harvard, little is known about cheating on college campuses during historical times. On the other hand, cheating in modern times is well-documented. The University of Texas-Austin has been tracking cheating at its campus since 2003 and reports an average of 350 incidents per year (Bi, 2013). During the spring 2012 semester, over 200 students were caught cheating on a take-home examination in a government class at Harvard. Over half of them were suspended for one or more semesters (Powers & Landergan, 2013). After it was

discovered that approximately one-third of the students in a business course at the University of Central Florida cheated on a mid-term examination in 2010, all 600 enrolled students were required to re-take the test (Zaragoza, 2010). The Internet, online classes, and student access to Internet-enabled devices such as smart phones have only served to flame anxiety about student cheating among faculty and college administrators.

By 2015, it is predicted that 25 million students will be taking college classes online while the number of students taking only face-to-face classes at a physical campus will drop to just over 4 million (Nagel, 2011). The rapid growth in the number of students taking online classes has fueled speculation about increases in student cheating. The Internet has increased access to education for people all over the world, but “with online courses come new versions of the age-old challenge of maintaining academic integrity” (Spaulding, 2009, p. 183). Generalizations that web-based instruction promotes more academic dishonesty than face-to-face classes “are dangerous because they can threaten the reputations of established academic institutions as well as diminish the value and legitimacy of credits and/or degrees earned in web-based environments” (Baron & Crooks, 2005, p.40).

The days of students writing test answers on their palms and sneaking glances at a classmate’s exam may not be completely gone, but technology has spawned new methods of cheating. Jones (2011) eulogized the cheating strategies of old: “high-tech cheating is gradually replacing the simple cut-and-paste cheating. Students have become more tech savvy, and online instructional cheating videos, detailing clever methods to cheat, are populating the Internet daily” (Jones, 2011, p. 142). In online classes, students can easily collaborate on examinations that do not require proctoring. One infamous strategy is for

an individual to write down the answers while taking the test; then, the student emails the answers to classmates who rush to enter them before the test deadline. Over half the participants in one research study thought it would be easier to cheat on an online test that is not proctored (Dillé, 2011). This knowledge may lead an instructor to believe that requiring proctored examinations in online classes will eliminate cheating. McCabe (2005) found that 24 to 47% of students reported cheating on proctored tests supporting that proctoring is not a significant deterrent. Using technology to cheat is not limited to online students. Texting test answers to classmates, purchasing essays from online paper mills, and photographing test pages with a cellular phone are modern methods of cheating in face-to-face classrooms.

Many college faculty members believe online delivery promotes more cheating than traditional methods and instructors expect students to cheat more in online classes. According to Kennedy, Nowack, Raghuraman, Thomas, and Davis (2000), it seems reasonable that online courses provide students with greater opportunities to cheat. In their study, the researchers found 64% of faculty and 57% of students thought cheating in online classes would be easier than in face-to-face courses. In contrast, the study revealed that students who had taken one or more online courses were less likely to believe it was easy to cheat in this environment.

In a 2003 study conducted by Symaco and Marcelo (as cited in Spaulding, 2009) 62% of faculty believed students would steal a copy of a test, but only 42% of students admitted they would steal an exam. This study further revealed that on issues of academic honesty, faculty had a tendency to perceive students in a negative manner. In a review of the literature, Jones (2011) found concerns about Internet plagiarism were

validated, although her research was not limited to online classes and included incidences of Internet plagiarism in traditional courses.

There is little evidence to support the notion that academic dishonesty is a larger problem in online courses than in face-to-face courses. In a survey conducted by the International Center for Academic Integrity, almost 80% of college students admitted to cheating at least once, but the survey did not restrict answers to cheating behavior in online classes (“Facts About Plagiarism”, 2011). Despite the attention given to academic integrity in online environments, it is difficult to measure incidences of cheating in web-based classes in part because the students and instructor are separated by distance; thus, cheating “is difficult to observe directly” (Mastin, Peszka, & Lilly, 2009, p. 177). Likewise, the asynchronous nature of online courses means that students and instructors are present in the virtual classroom at different times. For these reasons, it is difficult for faculty to monitor illicit student interaction and collaboration.

In a 1998 study, Ridley and Husbands (as cited in Baron & Crooks, 2005) hypothesized that students enrolled in both online and face-to-face courses would earn higher grades in the online courses because it would be easier for them to cheat. Actually, the researchers found the opposite to be true: Grade point averages were higher in the face-to-face courses. As a result of this evidence, Ridley and Husbands concluded faculty concerns about cheating in online courses are exaggerated. In a more recent study, no correlation was found between grade point average and cheating behaviors in online courses (Dillé, 2011). Grijalva, Kerkvliet, and Nowell (2006) reached a similar conclusion in their study. They found that only 3% of students admitted to cheating in an online course in which they were currently enrolled, a result which led the researchers to

determine academic dishonesty to be no more prevalent in online courses than in other courses. This evidence seems to support the notion that faculty wildly overestimate the frequency and severity of student cheating in online courses. There can be no doubt that cheating occurs in both face-to-face and online classes at the collegiate level. However, more research is needed to define the scope of cheating in online classes and determine if the delivery method is a factor in cheating incidences.

### **Problem Statement**

Postsecondary institutions are searching for authoritative research to guide policy in promoting academic integrity in a modern, technologically advanced world. The reality is faculty and administrators often do not understand the methods students employ to circumvent safeguards against cheating in academia today. Postsecondary institutions are being forced “to continuously examine their programs and develop sophisticated approaches to ensure the integrity of their academic programs (WICHE Cooperative for Educational Technologies [WCET], 2008). Current research is critical to these efforts. There is a plethora of research about academic dishonesty in traditional classroom settings, but fewer studies have been conducted solely focusing on the online environment. Moreover, little research has been done to measure the effect of deterrents to cheating on web-based students’ perceptions of academic integrity and incidences of cheating in online courses.

Research indicates that course delivery type is less likely to influence student cheating than other factors (Baron & Crooks, 2005; Mastin, Peszka, & Lilly, 2009; Şendağ, Duran, & Fraser, 2012; Spaulding, 2009). In fact, Spaulding (2009) found course type did not significantly impact how students perceived the likelihood they or

their peers would cheat. Based on this study and other evidence, Spaulding asserted “there may be unnecessary alarm concerning the prevalence of academic dishonesty in online courses as opposed to face-to-face courses” (p. 196). Baron and Crooks (2005) also stated that significant evidence exists to challenge the assumption that academic dishonesty is widespread in online courses. Dillé (2011) proclaimed “mode of instruction is irrelevant as to whether students cheat” (p. 53).

Şendağ, Duran, and Fraser (2012) found that factors other than course delivery type were better predictors of cheating. For example, classification proved to be an effective predictor of academic dishonesty: Freshmen were more likely to commit plagiarism than other undergraduate students. Degree program also separated the cheaters from the non-cheaters: Education majors were least likely to cheat while engineering students reported more incidences of cheating. Mastin, Peszka, and Lilly (2009) hypothesized more cheating occurs at the end of a semester. As expected, their research revealed students were more likely to cheat at the end of the semester than earlier in the semester by as much as 20.2%. The motivation for student cheating transcended delivery method. Students reported their primary motivation for cheating was feeling overwhelmed by class assignments or not allowing enough time to complete the work (Şendağ, Duran, & Fraser, 2012).

Educating students about what constitutes cheating may change their perceptions about cheating and positively influence their behavior. With so much information available on the Internet, it can be difficult to evaluate the credibility of a source and even determine the actual source of a web page. Often, facts are repeated on the Internet without appropriate citations. As a result, the Internet is changing the way students view

intellectual property. It is not surprising, then, that students who have grown up with the Internet believe information found online is public knowledge that does not require a citation. In 2003, Rimer interviewed Donald L. McCabe, a professor at Rutgers University who completed a study on plagiarism earlier that year. In McCabe's study, 38% of the surveyed undergraduate student population admitted to copying information from the Internet without citing it. Nearly 50% of the students indicated this is either not plagiarism or is an insignificant academic dishonesty offense.

Similarly, Jones (2011) found it was difficult for students to correctly identify instances of plagiarism. While 100% of the students surveyed said submitting another student's work as your own is cheating, only 50% agreed that paraphrasing from a source without citing it is plagiarism. Jones (2011) recommended including the academic honesty policy in the course syllabus and designing an activity to engage students in discussion about what constitutes academic integrity. Such an assignment gives the faculty the opportunity to provide specific examples of what constitutes cheating and how these incidents will be adjudicated. Faculty should plan to address academic integrity at other times during a course because "teaching students about academic integrity is everybody's business" (Jones, 2011, p. 145). As further support for including the institutional academic honesty policy in course syllabi, Duke University conducted a 10-year study (as cited in Baron & Crooks, 2005) which revealed institutions with an academic honesty policy experienced 25-50% less cheating than campuses that did not have such a policy.

While using the institution's academic honesty policy for instruction seems to have value as a deterrent to cheating, we know very little about the effect of online

academic integrity tutorials on student perceptions of cheating in online classes. As the research cited in this paper illustrates, most studies concentrate on self-reported cheating, perceived incidences of cheating, or predictors of cheating. Furthermore, very few studies have limited the scope of the research on cheating deterrents to the online environment. Since faculty persist in the belief that cheating occurs more frequently in online classes despite evidence to the contrary, it is important to develop strategies to promote high standards of academic integrity in students. Online academic integrity tutorials present an opportunity to educate students more thoroughly about cheating if these tools prove effective at changing student perceptions.

### **Purpose of Study**

The purpose of this study was to determine the effect of an online academic integrity tutorial on students' perceptions of cheating at a large sized community college in an urban area in the Midwest. Jones (2011) recommended requiring students to utilize online plagiarism tutorials, so they are better informed about academic dishonesty issues before turning in assignments. One such tool is "How to Recognize Plagiarism," Indiana University Bloomington, School of Education at <https://www.indiana.edu/~istd/>. The University of Southern Mississippi offers a tutorial designed as short modules with multiple self-assessments: This tutorial is published at <http://www.lib.usm.edu/legacy/plag/plagiarismtutorial.php>. The College of Arts and Sciences at Cornell University has an interactive tutorial that allows access from guests not affiliated with the institution; it is available at <http://plagiarism.arts.cornell.edu/tutorial/index.cfm>.

The tutorials cited above seek to inform students about plagiarism, but do not cover the broader topic of academic integrity. It would be reasonable to assume that if an online plagiarism tutorial can deter students from committing plagiarism, then an online academic integrity tool will serve as a measure to prevent other forms of cheating including plagiarism. As with online plagiarism tutorials, there are many online academic integrity tutorials available for use at no charge to an institution and its students. The University of Maryland offers a free tool at <https://www.umuc.edu/students/academic-integrity/ai-tutorial/academic-integrity-tutorial.html>. The academic integrity tool at Northern Illinois University has versions for students and faculty; it can be found at <http://www.ai.niu.edu/ai/>. The content of Baylor University's online academic integrity tutorial includes information about the institution's honor code. Several studies have found honor codes are an effective deterrent to cheating (McCabe, 2005; McCabe & Pavela, 2000, 2004; McCabe & Treviño, 1996). Baylor's tutorial is available at <http://www.baylor.edu/honorcode/index.php?id=87908>.

Any of these examples or another tutorial would be appropriate to use as the independent variable in this study. I chose to use the academic integrity tutorial offered by the University of Maryland for two reasons. First, it included a quiz at the end of the tutorial. At the beginning of the post-survey used in this research, I added a question asking respondents to enter their score on the quiz. This provided verification that the subject completed the academic integrity tutorial before proceeding to the post-survey. Second, the tutorial was written for a general audience rather than specifically for

students at the University of Maryland. It does not focus on policies at that institution, but provides education about academic integrity in general.

Participants in the study were limited to students enrolled in online classes. I hypothesized that students lack information about academic integrity; therefore, they cannot adequately define it or identify examples of violations. Furthermore, students who are educated about academic integrity would report less of an inclination to cheat in their online classes. I believed this study would show most cheating is not the result of a student's sinister intention to beat the system or fool their professors; rather, it is simply a result of ignorance of how the institution defines cheating. Students who have a clear understanding of academic honesty expectations would be less likely to succumb to other factors that influence cheating behavior. It is possible that students engage in cheating without realizing their behavior is considered cheating by the institution.

### **Research Questions**

The research questions guiding this study were:

1. What is the effect of online academic integrity tutorials on student perceptions of cheating? A null hypothesis would result if student perceptions of cheating do not change.
  - a. What is the effect of age on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.
  - b. What is the effect of classification (freshman or sophomore) on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.

2. How does knowledge of an institution's academic integrity policies correlate to student perceptions of cheating? A null hypothesis would result if student perceptions of cheating do not change.
3. Do student perceptions of cheating correlate to actual incidences of self-reported cheating? A null hypothesis would result if student perceptions of cheating do not correlate to their self-reported cheating behaviors.

### **Conceptual Framework Guiding Study**

Distance education has existed in the form of correspondence study since the 1800s (Spooner, Jordan, Algozzine, & Spooner, 1999). When televisions started to appear in every American living room in the 1950s, many institutions delved into broadcasting classes and later creating videos and DVDs that could be ordered and delivered straight to one's home (Williamson, 2009). The advancements of the Internet and personal computers in the 1980s and 1990s led to a revolution in education delivery methods and online classes quickly supplanted other forms of distance learning (Falgore, 2012). According to a recent report, online enrollment grew 9.7% in 2012 while the growth rate for traditional enrollment declined for the first time in 10 years. A total of 6.7 million students are taking at least one online course representing 32% of the total college student population (Allen & Seaman, 2013). Despite this phenomenal growth, which significantly outpaced face-to-face enrollment, only slightly more than 30% of chief academic officers believe that faculty accept online learning as a valid instructional medium (Allen & Seaman, 2013). Considering the disparity between student demand for online classes and faculty perceptions of its legitimacy, it is critical that academic honesty concerns be successfully addressed.

I approached this research from a postpositivist perspective. According to Creswell (2009), postpositivism is synonymous with the scientific method. As a researcher with the postpositivist worldview, I seek to distill ideas into smaller components that can be observed and measured. In the postpositivist tradition, I begin my research with a hypothesis about human behavior that can be tested and reduced to quantitative values. The data I collect either supports my hypothesis or refutes it. Phillips and Burbules (2000) proposed that postpositivist researchers seek to explain the relationship between variables and use data to refine our knowledge about the world. Consequently, my interpretation of the data will inform my understanding of how academic integrity tutorials affect student perceptions of cheating. This knowledge will contribute to the development of strategies for preventing cheating.

While I believe students cheat as a result of some motivating factor, the action of cheating is rarely malevolent. I will examine these motivations using the humanistic theory of motivation, which suggests people are motivated by needs as illustrated by Maslow's hierarchy of needs (1943/2011). I think traditional age students cheat because they are motivated by the need for love or the need for self-esteem. In the first instance, parents may over-emphasize the importance of grades; consequently, the student believes the parents' love is predicated on academic achievement. Furthermore, the student believes failing an examination or class will result in the loss of the parents' love. No one wants to fail and our self-esteem is based partly on our achievements (Maslow, 1943/2011). The need to protect one's self-esteem takes precedence over adhering to cultural mores and even a personal standard of ethics. Passing the test, the assignment, and the course is still viewed as an achievement, even when the student had to cheat to

succeed. To apply Maslow's (1943/2011) theory, students who set a goal of achieving a good grade react to anything that threatens the attainment of that goal. Cheating is seen as a means to achieve the goal and is rationalized as a necessary action. If the desired grade is achieved, students may even be proud of how they achieved it.

### **Design**

The design of this research was a quantitative study. Students enrolled in an online class at City College (CC), a large sized community college in an urban area in the Midwest, took a survey measuring their attitudes about cheating before and after completing an online academic integrity tutorial. The research occurred during a traditional semester in online courses that were either 16 weeks, 12 weeks, or eight weeks in length. While CC follows a traditional fall, spring, and summer semester schedule, courses can vary in length from three weeks to 16 weeks. This study captured students enrolled only in online courses of 16-, 12-, and 8-week lengths. City College does not offer developmental education courses online; thus, the online courses included in the study could be required for a degree or certificate program or meet a program elective, but no courses will be remedial. Additionally, some students participating in the study could be non-degree seeking and taking the online course for the purposes of transferring it to another institution or for personal development.

### **Methods**

The survey data for question one was analyzed using a dependent-means *t*-test to determine if there is a significant difference between the pre-survey and post-survey results. Question one had four subparts to determine the effect of other variables on the change in student perceptions of cheating. An ANOVA test was used to determine if

these variables had a significant effect on student perceptions of cheating. If the ANOVA showed significance, I conducted a multiple independent means *t*-test to determine where the significance exists. To address questions two and three, I visually inspected the data first to determine if a correlation analysis was warranted. A visual inspection was achieved by creating a Scatter Plot for question two responses and a Box-Whisker Plot for question three responses. When the visual inspection detected a correlation, a Pearson Correlation was conducted. These statistical measurements were chosen because they were appropriate to address the research questions.

### **Assumptions**

I made several assumptions about the population of study. First, I assumed that students were honest in their responses to the survey even if the questions ask about past cheating behavior. Second, the students actively took the tutorial and were reflective in learning the material. Third, and perhaps the most significant assumption I made about the sample group was that students do not cheat out of malevolence; rather, they are motivated by other needs such as love and self-esteem. While identifying the motivation to cheat was outside the scope of this research, it was important to explain this assumption because motivation affects the integrity of the study. If students cheat to trick their professors, then providing a tutorial would not have an impact on that behavior. Last, I assumed that delivery method was not a significant factor in a student's decision to cheat. Other factors are better predictors of cheating behavior than course delivery type (Mastin, Peszka, & Lilly, 2009; Şendağ, Duran, and Fraser, 2012).

### **Definition of Key Terms**

The terms used in this study were defined a myriad of ways by different sources and in different contexts. For the purposes of my research, I defined the key terms as follows.

*Academic honesty.* Using one's original thoughts to produce academic work and giving credit for ideas borrowed from other sources (Howard Community College, n.d.).

*Academic integrity.* "Academic integrity means honesty and responsibility in scholarship" (University of Illinois at Urbana-Champaign, "Definition of Academic Integrity," para.1). To extrapolate, this means acknowledging the sources one uses in creating academic work and always producing original work.

*Asynchronous.* Having no set time to occur ("Asynchronous", n.d.).

*Cheating.* To behave fraudulently with the intention to deceive; to break the rules ("Cheating", n.d.).

*Distance education.* Instruction that is delivered via technology to students who are separated from the instructor (Higher Learning Commission, 2013).

*Face-to-Face courses.* Courses that meet at a schedule time and place at least 75% of the required class meeting time (*Distance Learning Guidelines*, n.d.). Also referred to as "traditional" and "on-ground" courses.

*Online courses.* Courses where 75% or more of the "learning activities, content and assessment" (p. 4) is delivered asynchronously via the Internet (*Distance Learning Guidelines*, n.d.).

*Online student.* A student enrolled in one or more for-credit online courses.

*Plagiarism.* Presenting the words and ideas of someone else as one's own (Indiana University Bloomington, 2005).

### **Significance of the Research**

Faced with the reality that the Internet is contributing to academic dishonesty on college campuses, it is prudent to investigate assertions that cheating is more prevalent in online classes than in face-to-face classes. On the other hand, some studies have revealed that suspicions of cheating in online classes are exaggerated; thus, administrators and faculty should be aware of the true effect technology has on cheating rather than assuming academic integrity is being violated. Online students should not be considered suspect simply because they access education through the Internet.

Through this research, I intended to support institutional efforts to adopt comprehensive strategies that promote academic integrity in all classes irrespective of delivery method. Furthermore, I hoped this study would inform policies and practices that focus on preventing cheating by educating students about academic integrity rather than catching offenders. This study provided administrators with evidence that one method of preventing cheating, the online academic integrity tutorial, is either likely to yield positive results or will eliminate it as a viable preventative measure. Preserving the quality of education in online courses is important to post-secondary institutions and identifying effective methods for discouraging cheating is paramount to that effort.

### **Summary**

The Internet has increased access to education for people all over the world, but “with online courses come new versions of the age-old challenge of maintaining academic integrity” (Spaulding, 2009, p. 183). According to Kennedy, Nowack,

Raghuraman, Thomas, and Davis (2000), it seems reasonable that students cheat more in online courses. In their study, the researchers found 64% of faculty and 57% of students thought cheating in online classes would be easier than in face-to-face courses. In contrast, the study revealed that students who had taken one or more online courses were less likely to believe it was easy to cheat in this environment.

In a 1998 study, Ridley and Husbands (as cited in Baron & Crooks, 2005) hypothesized that students enrolled in both online and face-to-face courses would earn higher grades in the online courses because it would be easier for them to cheat. Actually, the researchers found grade point averages were higher in face-to-face courses. Grijalva, Kerkvliet, and Nowell (2006) found only 3% of students admitted to cheating in an online course in which they were currently enrolled, a result which led the researchers to determine academic dishonesty to be no more prevalent in online courses than in other courses.

Research on the prevalence of cheating in the online environment has been limited and results mixed. This study added to the body of knowledge about cheating and will inform academic integrity policies and practices at postsecondary institutions. There is a need to identify effective measures for deterring student cheating and promoting honesty. This research provided data about the effectiveness of online academic integrity tutorials as a viable preventative measure that institutions could adopt.

## Chapter 2: Literature Review

Many college faculty members believe online delivery promotes more cheating than traditional methods and instructors expect students to cheat more in online classes.

According to Kennedy, Nowack, Raghuraman, Thomas, and Davis (2000), it seems reasonable that online courses provide students with greater opportunities to cheat. In their study, the researchers found 64% of faculty and 57% of students thought cheating in online classes would be easier than in face-to-face courses. In contrast, the study revealed that students who had taken one or more online courses were less likely to believe it was easy to cheat in this environment. In a 2007 study, Chiesl surveyed students about cheating in online classes. Only 17% of students believed that more cheating would occur in online classes than in traditional classes. Conversely, 42% of students believed that less cheating would occur in online courses than in on-ground courses.

### Purpose of Study

The purpose of this study was to determine the effect of an online academic integrity tutorial on students' perceptions of cheating at a large sized community college in an urban area in the Midwest. Jones (2011) recommended requiring students to utilize online plagiarism tutorials, so they are better informed about academic dishonesty issues before turning in assignments. One such tool is "How to Recognize Plagiarism," Indiana University Bloomington, School of Education at <https://www.indiana.edu/~istd/>. The University of Southern Mississippi offers a tutorial designed as short modules with multiple self-assessments: This tutorial is published at <http://www.lib.usm.edu/legacy/plag/plagiarismtutorial.php>. The College of Arts and

Sciences at Cornell University has an interactive tutorial that allows access from guests not affiliated with the institution; it is available at

<http://plagiarism.arts.cornell.edu/tutorial/index.cfm>.

The tutorials cited above seek to inform students about plagiarism, but do not cover the broader topic of academic integrity. It would be reasonable to assume that if an online plagiarism tutorial can deter students from committing plagiarism, then an online academic integrity tool could serve as a measure to prevent other forms of cheating including plagiarism. As with online plagiarism tutorials, there are many online academic integrity tutorials available for use at no charge to an institution and its students. The University of Maryland offers a free tool at

[https://www.umuc.edu/students/academic-integrity/ai-tutorial/academic-integrity-](https://www.umuc.edu/students/academic-integrity/ai-tutorial/academic-integrity-tutorial.html)

[tutorial.html](https://www.umuc.edu/students/academic-integrity/ai-tutorial/academic-integrity-tutorial.html). The academic integrity tool at Northern Illinois University has versions for students and faculty; it can be found at <http://www.ai.niu.edu/ai/>. The content of Baylor

University's online academic integrity tutorial includes information about the institution's honor code. Several studies have found honor codes are an effective deterrent to cheating (McCabe, 2005; McCabe & Pavela, 2000, 2004; McCabe & Treviño, 1996). Baylor's tutorial is available at

<http://www.baylor.edu/honorcode/index.php?id=87908>. Any of these examples or another tutorial would be appropriate to use as the independent variable in this study.

Participants in the study were limited to students enrolled in online classes. I hypothesized that students lack information about academic integrity; therefore, they cannot adequately define it or identify examples of violations. Furthermore, students who are educated about academic integrity would report less of an inclination to cheat in

their online classes. I believed this study would show most cheating is not the result of a student's sinister intention to beat the system or fool their professors; rather, it is simply a result of ignorance of how the institution defines cheating. Students who have a clear understanding of academic honesty expectations would be less likely to succumb to other factors that influence cheating behavior. It is possible that students engage in cheating without realizing their behavior is considered cheating by the institution.

### **Research Questions**

The research questions guiding this study were:

1. What is the effect of online academic integrity tutorials on student perceptions of cheating? A null hypothesis would result if student perceptions of cheating do not change.
  - a. What is the effect of gender on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.
  - b. What is the effect of major on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.
  - c. What is the effect of age on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.
  - d. What is the effect of classification (freshman or sophomore) on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.

2. How does knowledge of an institution's academic integrity policies correlate to student perceptions of cheating? A null hypothesis would result if student perceptions of cheating do not change.
3. Do student perceptions of cheating correlate to actual incidences of self-reported cheating? A null hypothesis would result if student perceptions of cheating do not correlate to their self-reported cheating behaviors.

### **Prevalence of Student Cheating**

In a 2003 study conducted by Symaco and Marcelo (as cited in Spaulding, 2009) 62% of faculty believed students would steal a copy of a test, but only 42% of students admitted they would steal an exam. This study further revealed that faculty had a tendency to perceive students in a negative manner on issues of academic honesty. In a review of the literature, Jones (2011) found concerns about Internet plagiarism were validated, although her research was not limited to online classes and included incidences of Internet plagiarism in traditional courses. Jocoy and DiBiase (2006) found a 13% rate of plagiarism when they used Turnitin.com to identify actual incidences of plagiarized material. The researchers noted that plagiarism infractions are likely to be much lower than what students self-report on questionnaires.

Chao, Wilhelm, and Neureuther (2009) conducted a review of 60 years of plagiarism research published in academic journals. Their research revealed that rates of cheating appear to be increasing: Drake reported 23% of students cheated in 1941, but that rate had skyrocketed to 76% in a 1992 study conducted by Davis, Grover, Becker and McGregor. In contrast, Jocoy and DiBiase (2006) contended the 13% plagiarism rate found in their study was consistent with what other researchers have discovered.

Nonetheless, studies limited to the prevalence of plagiarism have found between 7% and 55% of university students openly admit to some form of intentional plagiarism (McCabe, Treviño, & Butterfield, 2002; Scanlon & Neumann, 2002; Youmans, 2011). When comparing results of a 1993 study to a pivotal study conducted by William Bowers in 1963, McCabe (2005) found rates of cheating appeared to be increasing. In 1963, 39% of students reported cheating on an exam, whereas 64% of students reported cheating on an exam in McCabe's 1993 study. McCabe attributed this increase more to changing student attitudes about cheating rather than actual increases in the number of cheating incidences at colleges in part because there was virtually no change in the percentage of students who reported cheating on writing assignments. Students in 1993 were less likely to view cheating as a serious offense. Furthermore, McCabe asserted, "The ethics of cheating is very situational for many students" (2005, p. 28).

It may be that some students will cheat regardless of delivery method. In one study, students "who admitted cheating in a traditional course were 7.3 times as likely to admit cheating in an online course too" (Dillé, 2011, p. 53). One researcher supposed that students who engage in one kind of cheating are more likely to commit other dishonest acts. In a series of studies, McCabe found 80% of students who admit to committing plagiarism on written assignments are more likely to engage in behaviors such as cutting and pasting from Internet resources and purchasing papers from an online research paper mill (2005).

### **Cheating in Online versus Face-to-Face Courses**

There is little evidence to support the notion that academic dishonesty is a much larger problem in online courses than in face-to-face courses. While cheating has been

found to be more prevalent in online classes (Lanier, 2006), other research showed that there is less cheating in online classes (Grijalva, Kerkvliet, & Nowell, 2006; Miller & Young-Jones, 2012; Stuber-McEwen, Wisely, & Hoggatt, 2009). Despite the attention on academic integrity in online environments, it is difficult to measure incidences of cheating in web-based classes in part because the students and instructor are separated by distance; thus, cheating “is difficult to observe directly” (Mastin, Peszka, & Lilly, 2009, p. 177). Likewise, the asynchronous nature of online courses meant that students and instructors are present in the virtual classroom at different times. For these reasons, it is difficult for faculty to monitor student interaction and work completion.

In a 1998 study, Ridley and Husbands (as cited in Baron & Crooks, 2005) hypothesized that students enrolled in both online and face-to-face courses would earn higher grades in the online courses because it would be easier for them to cheat. The researchers found the opposite to be true: Grade point averages were higher in the face-to-face courses. As a result of this evidence, Ridley and Husbands concluded that faculty concerns about cheating in online courses are exaggerated. In a more recent study, no correlation was found between grade point average and cheating behaviors in online courses (Dillé, 2011). Grijalva, Kerkvliet, and Nowell (2006) reached a similar conclusion in their study. They found that only 3% of students admitted to cheating in an online course in which they were currently enrolled, a result which led the researchers to determine academic dishonesty to be no more prevalent in online courses than in other courses.

Miller and Young-Jones (2012) found that students enrolled only in online classes were less likely to cheat than students enrolled only in face-to-face classes and in a mix

of face-to-face and online classes. The students enrolled in a mix of face-to-face and online classes were more likely to cheat in their online classes than in their face-to-face classes: 64.7% of these students reporting cheating in their online classes and 49.1% of the students reported cheating in their face-to-face classes. In part, the researchers attributed the reason for less cheating in online classes to students' average age. Students in online classes tend to be older than students in face-to-face classes and older students are less likely to cheat. Dillé also found that age was a factor in determining cheating behaviors. In a 2011 study of 10 two-year and four-year institutions, older students were less likely to cheat than younger students. In fact, the likelihood of cheating was found to be conversely related to age: as age increases, cheating behaviors decrease. This evidence seems to support the notion that faculty wildly overestimate the frequency and severity of student cheating in online courses.

Stuber-McEwen, Wiseley, and Hoggatt (2009) conducted a study comparing cheating in face-to-face classes to cheating in online classes to determine if more cheating occurs in one delivery method more than in another. The researchers found cheating occurred more often in the traditional classes. Furthermore, students in face-to-face classes cheated more than students in online classes in every category. For example, students in face-to-face classes were five times more likely to aid and abet a classmate to cheat than students in online classes.

### **Other Factors Influencing Cheating**

Research indicated that course delivery type is less likely to influence student cheating than other factors. In fact, Spaulding (2009) found course type did not significantly impact how students perceived the likelihood they or their peers would

cheat. Based on this study and other evidence, Spaulding asserted “there may be unnecessary alarm concerning the prevalence of academic dishonesty in online courses as opposed to face-to-face courses” (p. 196). Baron and Crooks (2005) also stated that significant evidence exists to challenge the assumption that academic dishonesty is widespread in online courses.

Part of term and lack of information have been found to influence student cheating. In a survey conducted by the International Center for Academic Integrity, almost 80% of college students admitted to cheating at least once, but the survey did not restrict answers to cheating behavior in online classes (“Facts About Plagiarism,” 2011). Mastin, Peszka, & Lilly (2009) hypothesized that more cheating occurs at the end of a semester than at other parts of a term. As expected, their research revealed incidents of cheating increased by as much as 20.2% at the end of the semester over earlier in the semester. Some researchers supposed that most plagiarism is unintentional because many students lack knowledge of basic techniques for summarizing and paraphrasing text; this supposition implies that students’ skill level may impact cheating (Howard & Davies, 2009; Jocoy & DiBiase, 2006).

Şendağ, Duran, and Fraser (2012) found that factors other than course delivery type were better predictors of cheating. For example, classification proved to be an effective predictor of academic dishonesty: Freshmen were more likely to commit plagiarism than other undergraduate students. Degree program also separated the cheaters from the non-cheaters: Education majors were least likely to cheat while engineering students reported more incidences of cheating. Students reported their primary motivation for cheating was feeling overwhelmed by class assignments or not

allowing enough time to complete the work (McCabe 2005; Şendağ, Duran, and Fraser, 2012).

There may also be a link between student cheating and media coverage of dishonesty in other realms (Callahan as cited in Kellum, Mark, & Riley-Huff, 2011). Lance Armstrong admitting to taking performance enhancing drugs after years of denying this charge and Jesse Jackson, Jr.'s guilty plea for misusing campaign funds to buy personal luxuries such as Rolex watches and fur coats are just two recent examples of dishonest practices of public figures who were once heroes to many people. Taking these other factors into consideration, delivery method seemed to be less of an indicator for cheating than some faculty researchers have prophesied.

In one study, aiding and abetting was the most common form of cheating in both traditional and online courses, although this behavior was reported more often by face-to-face students (Stuber-McEwen, Wiseley & Hoggatt, 2009). Aiding and abetting includes behaviors such as giving one's work to another student and allowing another student to see test answers during an examination. McCabe, Treviño, and Butterfield (2001) explored the rationale students use to justify aiding and abetting behavior. Students who perceive cheating as commonplace among their peers, or who observe cheating at an institution, may begin to view these behaviors as acceptable, and even necessary to get ahead. Aiding and abetting a classmate is seen as a token of friendship and "a willingness to help" (Stuber-McEwen, Wiseley & Hoggatt, 2009, p. 7).

### **Student Lack of Understanding about Cheating**

Some researchers asserted that students lack the requisite knowledge to avoid cheating (Howard & Davies, 2009; Jones, 2011; Risquez, O'Dwyer, & Ledwith, 2013).

In a 2013 study, Risquez, O'Dwyer, and Ledwith found that although students could define plagiarism, they could not apply this knowledge in practice to identify examples of plagiarism and avoid the behavior in their own writing. These findings supported the view of others (Howard & Davies, 2009; Jones, 2011; O'Dwyer, Risquez, & Ledwith, 2010; Trost, 2009) that cheating and plagiarism, in particular, are often unintentional and the result of students' lack of skill and ability to avoid these behaviors despite recognizing that cheating is immoral and forbidden by the institution they attend. It can be difficult to identify plagiarism incidences especially when text is summarized in one's own words. It can be so challenging, in fact, that faculty members cannot always identify plagiarism correctly (Perfect, Field, & Jones, 2009). Another researcher (Dillé, 2011) found 30% of students participating in a survey of cheating behaviors did not believe using notes during an exam was cheating. Similarly, almost 24% did not consider using a book during a test as cheating.

Educating students about what constitutes cheating may change their perceptions about cheating and positively influence their behavior. In fact, Holt, Fagerheim, and Durham (2014) found that students' ability to identify and avoid plagiarism improves with formal education on what constitutes plagiarism. With so much information available on the Internet, it can be difficult to evaluate the credibility of a source and even determine the actual source of a web page. Often, facts are repeated on the Internet without appropriate citations. As a result, the Internet is changing the way students view intellectual property. It is not surprising, then, that students who have grown up with the Internet believe information found online is public knowledge that does not require a citation. In 2003, Rimer interviewed Donald L. McCabe, a professor at Rutgers

University who completed a study on plagiarism earlier that year. In McCabe's study, 38% of the surveyed undergraduate student population admitted to copying information from the Internet without citing it. Nearly 50% of the students indicated this is either not plagiarism or is an insignificant academic dishonesty offense. Similarly, Jones (2011) found it was difficult for students to correctly identify instances of plagiarism. While 100% of the students surveyed said submitting another student's work as your own is cheating, only 50% agreed that paraphrasing from a source without citing it is plagiarism.

On many campuses, libraries provide information literacy education programs including plagiarism prevention (Madray, 2008; and Moniz, Fine, & Bliss, 2008). There has been some research on the effectiveness of these programs. One study evaluated the effectiveness of a series of homegrown plagiarism prevention workshops at the University of South Carolina Upstate. The study found that students struggled with common knowledge, paraphrasing and citations even after completing the workshops. Anecdotally, the researchers noted that students inquiring at the library reference desk complain it is hard to learn citation standards when instructors of different courses do not require the same citation style (Kirsch & Bradley, 2012).

Many students may simply lack the requisite skills to effectively avoid plagiarizing the work of others in their writing assignments, a sobering thought in the era of Internet research (Holt, Fagerheim, & Durham, 2014; Howard & Davies, 2009; O'Dwyer, Risquez, & Ledwith, 2010; Jones, 2011; Risquez, O'Dwyer, & Ledwith, 2013). Some instructors threaten students with punitive consequences if they are caught plagiarizing, while other faculty limit or completely forbid the use of web-based resources for research. This approach is completely contrary to the spirit of education:

Faculty members have a responsibility to teach students the skills they need to be effective researchers and writers, and to avoid the pitfalls of plagiarism. Additionally, researchers found punishment and threats of punitive action to be ineffective at deterring cheating (Power, 2009; Risquez, O'Dwyer & Ledwith, 2013). Instead of forbidding the use of Wikipedia, for example, instructors should teach students how to verify the information in this resource and use it wisely (Howard & Davies, 2009). Faculty should include academic integrity as part of their curriculum because communicating course expectations is a basic tenet of quality teaching; skills such as paraphrasing and summarizing should be emphasized throughout the curriculum (Chao, Wilhelm & Neureuther, 2009; Howard & Davies, 2009; Jocoy & DiBiase, 2006; Jones, 2011; McAllister & Watkins, 2012). Kohlberg and Hersh contended that if colleges insist their students exhibit high moral character and abstain from cheating, then it is the faculty's responsibility to cultivate these morals in students and develop in them a sense of the importance of academic integrity (as cited in Jocoy & DiBiase, 2006).

### **Deterrents to Cheating**

It would be reasonable to assume that students who are aware that plagiarism detection software will be used to identify incidences of plagiarism in their papers would be less likely to commit this offense. In a 2011 study, Youmans found using Turnitin had no effect on student plagiarism offenses. Turnitin is a plagiarism detection software that compares student papers to articles, books, and previous student submissions, had no effect on student plagiarism offenses. In the study, Youmans warned one group of students their papers would be scanned using Turnitin and a second group of students was not warned. Three students committed plagiarism and all three were in the warned group.

During follow-up discussions, the students confessed to being unsure about the requirements for citing articles correctly. Youmans concluded Turnitin was not a deterrent to plagiarism in this study, but plagiarism detection software can be useful for identifying plagiarism in student papers.

Some researchers found that educating students about academic integrity has been effective at deterring cheating. In one study, Jocoy and DiBiase experienced a 3.5% decline in plagiarism after the implementation of an *expectation management strategy* that included guidelines for properly citing reference material and a quiz testing students' knowledge of academic integrity (2006). On the whole, the 3.5% decline was not statistically significant; however, one of their findings stood out. Five students plagiarized on the first assignment and they were given both the opportunity to revise their work and individual instruction on how to correct the plagiarized passages. On subsequent assignments, none of these five students repeated the offense. For these five students, at least, receiving the corrective instruction effectively eliminated the tendency to plagiarize.

Chao, Wilhelm, and Neureuther (2009) conducted a similar study comparing groups of students who received varying levels of instruction on academic integrity. The control group received very little instruction while the test groups received in-class instruction that may have included a review of the university's academic integrity policy, guided discussion, and practice exercises. The researchers found that students in the control group were significantly more likely to plagiarize than were students in the experimental groups. In the discussion of these findings, the researchers asserted it is

ineffective to expect students not to cheat unless students receive instruction on how to avoid cheating.

Several researchers cited course and assessment design as deterrents to cheating (Baron & Crooks, 2005; Jones, 2011; McCabe & Pavela, 2004). Changing assessment methods from semester to semester and using techniques such as randomizing question stems and responses can make it more difficult for students to cheat (Baron & Crooks, 2005; McAllister & Watkins, 2012). Faculty members should utilize assessments that require critical and reflective thinking and revise these assessments often. Students would be less likely to cheat on a “personally designed experiment or project” than on assignments they perceive to be “busywork” (McCabe & Pavela, 2004, p. 14).

The nature of online courses can actually aid in deterring cheating. By allowing asynchronous exams, students typically take the exam as it suits their schedule making it difficult for two or more students to collude to share exam answers. As McAllister and Watkins surmised in the article *Increasing Academic Integrity in Online Classes by Fostering the Development of Self-Regulated Learning Skills*, it is easier for students to conspire to cheat when they have to take the exam at the exact same time (2012).

Concerns about plagiarism in biology classes prompted Holt, Fagerheim, and Durham (2014) to conduct a study to determine if online plagiarism tutorials or a plagiarism homework assignment was more effective at deterring plagiarism. The researchers found that students’ ability to identify and avoid plagiarism improved with formal education on what constitutes plagiarism. However, students who completed the homework assignment achieved greater gains. The students who completed the online plagiarism tutorial achieved modest gains, but the gains were comparable to the

improvement of students who received no formal education to discern plagiarism. In short, the study supported the introduction of homework assignments over online tutorials.

Jones (2011) and Chiesl (2007) recommended including the academic honesty policy in the course syllabus and discussing the policy with students. Such a discussion gives the faculty member the opportunity to provide specific examples of what constitutes cheating and how these incidents are adjudicated. Students are concerned with instructors' expectations for academic honesty in a course; faculty who do not articulate their policies and respond to obvious incidences of cheating may be inviting students to cheat (McCabe, 2005). Chiesel (2007) suggested supplementing the syllabus policy by using email and announcements in the learning management system to remind students throughout the course that cheating is against college policy. Additionally, students in online courses should be required to click a button confirming they read the policy before they are allowed to access course materials for the first time (Chiesel, 2007). As further support for including the institutional academic honesty policy in course syllabi, Duke University conducted a 10-year study which revealed that institutions with an academic honesty policy experienced 25-50% less cheating than campuses that did not have such a policy (Baron & Crooks, 2005).

In various studies, Donald McCabe, who spent decades researching academic integrity, and colleagues recommended establishing honor codes to deter student cheating (McCabe, 2005; McCabe & Pavela, 2000, 2004; McCabe & Treviño, 1996). Having an established honor code makes it clear to students that an institution and its faculty value academic integrity. According to McCabe (2005), students who perceive that the

institution and faculty would not tolerate cheating are less likely to commit acts of cheating. In fact, students are dismayed when they perceive the institution and faculty tolerate cheating. A culture that fails to uphold high academic standards and take cheaters to task gives cheaters an unfair advantage in the minds of students (McCabe, 2005). Additionally, having an honor code appeared to contribute to increased peer pressure not to violate the code by committing an act of academic dishonesty (McCabe & Pavela, 2000). In today's world, students are more concerned about how their peers perceive cheating than what college administrators think on the topic (McCabe, 2005). Furthermore, honor codes "work because they encourage students to take the lead in setting higher ethical standards for themselves and their peers" (McCabe & Pavela, 2004, p. 13).

Research supported the notion that honor codes deter cheating. In a survey conducted in the 1999-2000 academic year at twelve colleges, the colleges with established honor codes reported lower rates of cheating than the colleges without honor codes (McCabe & Pavela, 2004). Interestingly, Dillé (2011) found that over 93% of students reported their institution had an honor code, but none of the deans surveyed reported the existence of institutional honor codes. As Dillé surmised this would seem to indicate that students confuse honor codes with academic dishonesty policies. While the term "honor code" was not defined for the students participating in this study, it was apparent that institutions should be clear about their academic integrity policies and honor codes, if they exist, and be more assertive in exposing students to these documents. McCabe and Pavela (2004) noted that over two-thirds of faculty surveyed in one study failed to include expectations for academic integrity in their course syllabi and 44%

“acknowledged that they had ignored at least one suspected incident of cheating” (p. 13). It should not be surprising that students concede to sharing information about which instructors are lax about cheating and they are more likely to cheat in courses taught by these faculty members (McCabe & Pavela, 2004).

### **Conclusion**

Even though faculty members generally believed that students cheat more in online courses, course delivery type was not found to be as significant a factor in student cheating behaviors as other variables such as major and part of term (Baron & Crooks, 2005; Mastin, Peszka, & Lilly, 2009; Şendağ, Duran, and Fraser, 2012; Spaulding, 2009). Often, students are unclear as to what constitutes cheating and how best to avoid violating academic integrity policies (Jones, 2011; Rimer, 2003). The research indicated that educating students about cheating seems to be the best deterrent (Chao, Wilhelm, & Neureuther, 2009; Jocoy & DiBiase, 2006). There has been very little research about the effectiveness of online academic integrity tutorials as the means for educating students to avoid cheating behaviors. In the following chapter, I will describe the research methodology for this study. Furthermore, I will explain the data analysis techniques that were used to determine the significance of the effect of the online academic integrity tutorial on student perceptions of cheating.

### **Chapter 3: Methodology**

Postsecondary institutions are being forced “to continuously examine their programs and develop sophisticated approaches to ensure the integrity of their academic programs” (WICHE Cooperative for Educational Technologies [WCET], 2008). There is a plethora of research about academic dishonesty in traditional classroom settings, but fewer studies have been conducted solely focusing on the online environment. Moreover, little research has been done to measure the effect of deterrents to cheating on web-based students’ perceptions of academic integrity and incidences of cheating in online courses.

The rapid acceleration of distance education has fueled faculty concerns about rampant cheating in online classes. According to a recent report, online enrollment grew 9.7% in 2012 while the growth rate for traditional enrollment declined for the first time in ten years (Allen & Seaman, 2013). Despite this phenomenal growth, only slightly more than 30% of chief academic officers believe faculty accept online learning as a valid instructional medium (Allen & Seaman, 2013). Considering the disparity between student demand for online classes and faculty perceptions of its legitimacy, it is critical that academic honesty concerns be successfully addressed.

With so much information available on the Internet, it can be difficult to evaluate the credibility of a source and even determine the actual source of a web page. It is not surprising that students who have grown up with the Internet believe information found online is public knowledge that does not require a citation. Jones (2011) found it was difficult for students to correctly identify instances of plagiarism. While 100% of the students surveyed said submitting another student’s work as your own is cheating, only 50% agreed that paraphrasing from a source without citing it is plagiarism.

We know very little about the effect of online academic integrity tutorials on student perceptions of cheating in online classes. Most studies concentrate on self-reported cheating, perceived incidences of cheating, or predictors of cheating. Furthermore, very few studies have limited the scope of the research to the online environment. Since faculty believe cheating occurs more frequently in online classes, it is important to develop strategies to promote high standards of academic integrity. Online academic integrity tutorials present an opportunity to educate students more thoroughly about cheating if these tools prove effective at changing student perceptions.

### **Purpose of the Study**

Students and faculty define cheating differently. This incongruity represents a challenge for faculty who want to promote academic integrity in their classes. The question is, “How do we ensure that students understand what faculty expectations are regarding academic integrity?” Jones (2011) recommended requiring students to utilize online plagiarism tutorials, so they are better informed about academic dishonesty issues before turning in assignments. I agree with Jones that online plagiarism tutorials have the potential to inform students and, consequently, reduce instances of cheating. An online academic integrity tutorial, which addresses all forms of cheating and not just plagiarism, could have an even greater effect in reducing instances of cheating among college students. Furthermore, using these tools could increase faculty confidence in the integrity of their online classes.

Participants in the study were limited to students enrolled in online classes. I hypothesized that students lack information about academic integrity; therefore, they cannot adequately define it or identify examples of violations. Furthermore, students

who are educated about academic integrity would report less of an inclination to cheat in their online classes. I believed this study would show most cheating is not the result of a student's sinister intention to beat the system or fool their professors; rather, it is simply a result of ignorance of how the institution defines cheating. Students who have a clear understanding of academic honesty expectations would be less likely to succumb to other factors that influence cheating behavior. It is possible that students engage in cheating without realizing their behavior is considered cheating by the institution.

### **Research Questions**

The research questions guiding this study were:

1. What is the effect of online academic integrity tutorials on student perceptions of cheating? A null hypothesis would result if student perceptions of cheating do not change.
  - a. What is the effect of gender on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.
    - a. What is the effect of major on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.
    - b. What is the effect of age on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.

- c. What is the effect of classification (freshman or sophomore) on student perceptions of cheating before and after taking the online academic integrity tutorial? A null hypothesis would result if there is no effect.
2. How does knowledge of an institution's academic integrity policies correlate to student perceptions of cheating? A null hypothesis would result if student perceptions of cheating do not change.
3. Do student perceptions of cheating correlate to actual incidences of self-reported cheating? A null hypothesis would result if student perceptions of cheating do not correlate to their self-reported cheating behaviors.

### **Design for the Study**

This design of this research was a quantitative study. I chose to conduct quantitative research for several reasons. First, most of the research on academic integrity is of a quantitative nature. In fact, I have not found a single qualitative or mixed methods study on this topic. Second, Creswell (2009) stated survey research is a quantitative strategy. Since I used a survey, a quantitative model was an appropriate choice.

While a mixed methods design would be possible, I rejected this strategy. The participants were separated from me by time (online courses are asynchronous) and distance. It would have been challenging to follow-up with the participants to conduct open-ended questioning to explore their perceptions of cheating before and after taking the academic integrity tutorial. Also, conducting field observations in online classes would have been impossible because there is no set class time. According to Creswell (2009), observation and interviews are often methods used for qualitative research and

not quantitative research. The length of the research period is also a factor. It would be difficult to conduct qualitative research in a timeframe as short as a 16-week semester.

After much consideration, I concluded that quantitative research was the most appropriate method for this study.

### **Population and Sample**

According to a recent report, a total of 6.7 million students are taking at least one online course representing 32% of the total college student population (Allen & Seaman, 2013). By 2015, it is predicted that 25 million students will be taking college classes online, while the number of students taking only face-to-face classes at a physical campus will drop to just over 4 million (Nagel, 2011).

One community college in an urban area in the Midwest was the focus of this research. As a measure to protect the anonymity of the participants, the name of the institution was not revealed; instead, the institution was referred to as City College (CC) in this dissertation. During the fall 2014 semester, the institution had a student population of 21,217. The student body was 55% white, 33% black and 12% other minority or mixed race. The students were 40.7% male and 59.3% female. Thirty-nine percent of the students were aged 25 and over and 62% attended part-time. Just over 47% of the students received federal Pell grants and another 6.7% received other types of federal, state, local, or institutional aid (*Student Body Profile*, 2014).

City College experienced a 30% decline in overall enrollment since 2011 while enrollment in online courses decreased only 11% during the same period (*Student Body Profile*, 2014). City College offers nine associate degree and certificate programs 100% online. During the fall 2014 semester, there were approximately 5,000 students enrolled

in one or more online courses at CC. According to Cohen (as cited in Field, 2011), I needed a sample size of 85 to perceive a medium effect size using an  $\alpha$ -level of .05 and a statistical power of .8. Detecting a small effect size would require a sample size of 783. Since it was highly unlikely that 783 students will agree to participate, I chose the smaller population of 85 participants.

The population sample for this research consisted of students enrolled in at least one for-credit online course during one academic semester at CC. The sample excluded courses that were not in the 16-, 12-, or 8-week parts of term. Consequently, students enrolled only in courses that were shorter than eight weeks in length were excluded from the survey. One reason for excluding these shorter courses is they are accelerated; meaning students are progressing through content at a quicker pace. Asking students to complete a survey in an accelerated class may cause undue stress. Therefore, I limited the sample to include students enrolled in 16-, 12-, and 8-week courses only.

### **Human Subjects Protection**

In this study, students were asked to self-report cheating attitudes and behaviors. There was significant risk in reporting this information; consequently, I described the methods I employed to protect the anonymity of student responses and eliminate any possibility that faculty could access individual student responses.

Protecting the human subjects participating in this study was of the utmost concern. I followed guidelines dictated by the Institutional Review Board (IRB) at the University of Missouri – Columbia and the institution where the research was conducted (Appendix A). Students in the sample population were provided with an electronic copy of an informed consent letter via their institutional email account. Subjects were

informed that I was a doctoral student completing research as part of my program of study at the Department of Educational Leadership and Policy Analysis at the University of Missouri – Columbia. Students could refuse to participate in this study and were free to withdraw at any time. Subjects were further informed that nonparticipation and withdrawal would not affect their relationship with the University of Missouri – Columbia, the institution where they attended, and services provided by those organizations.

The informed consent letter described the purpose and procedures of the research. The risks of participation were clearly articulated. It would be unethical to withhold details of the study that make it clear that participants were self-reporting their perceptions of academic integrity and incidences of cheating. It was understandable that students would be reluctant to share such information while they were actively enrolled. However, I meticulously explained the measures undertaken to protect participant identity and confidentiality. In fact, no identifying information was collected from participants aside from a few demographic items such as age, gender, and academic year. Also, survey responses could not be linked to specific courses, a measure that further protected participant identity. While subjects received no compensation for participating in the research, participants were eligible to enter a drawing for a 32GB iPad Mini. The drawing entries were contained in a separate Google form and could not be connected to survey responses in Survey Monkey. Completing the academic integrity tutorial was likely to increase participants' knowledge of academic integrity issues, which will benefit them during their college career. The informed consent letter also contained contact information for the IRBs at both institutions and the researcher.

### **Data Collection and Instrumentation**

The data analysis section of the paper outlines the statistical treatment of the data. The independent and dependent variables are clearly articulated. The statistical analysis is described including the significance level I used to determine statistical significance. This section also includes a discussion of the reliability and validity of the instrument used as well as references to defend the quality of the data and the analysis.

### **Data Collection Procedures**

Students took a survey measuring their attitudes about cheating before and after completing an online academic integrity tutorial. The research occurred during a single semester and included only 16-, 12-, and 8-week courses. The first step was to request email addresses for all students enrolled in for-credit classes at CC. All students received an email inviting them to participate in the research project (Appendix B). The email included links to the first Academic Integrity Survey, the online academic integrity tutorial, and a second Academic Integrity Survey. The email also contained a link to the informed consent letter and an estimate of the time required to complete both surveys and the tutorial. A reminder email was sent halfway through the collection period. The surveys were open for approximately two weeks.

Since this research was limited to students enrolled in online classes, it was necessary to add the following question to the Academic Integrity Survey: “Are you currently enrolled in an online class?” Based on responses to this question, I sorted the sample population to determine which students are enrolled in online classes. The students enrolled in no online classes were not included in this study.

I used Survey Monkey, an online survey tool, to administer the surveys and generate the emails to students. Because the survey tool is external to CC's enterprise computing systems, only the researcher had access to the survey results. This methodology is an additional measure to protect the anonymity of participating students. I did not ask for identifying information from survey respondents, although some demographic information such as age and year in school was collected as part of the Academic Integrity Survey.

**Instrument name.** I used the Academic Integrity Survey developed by Donald L. McCabe, retired professor of management and global business at Rutgers University. Since Dr. McCabe first administered the survey to 31 schools in 1990, he has surveyed over 80,000 students with this instrument. When the initial survey results in 1990 yielded troubling data about academic integrity on college campuses, Dr. McCabe founded the International Center for Academic Integrity in 1992 with five colleagues to continue to research the issue (International Center for Academic Integrity, n.d.). Dr. McCabe has published over 50 articles on academic integrity and is widely cited in other research (Rutgers University, n.d.). I understand him to be the premier expert on academic integrity in the United States. Since Dr. McCabe is retired, I contacted the International Center for Academic Integrity and obtained permission to use the Academic Integrity Survey in this research (Appendix C).

**Reliability and validity.** A survey must be valid and reliable in order to yield useful results. Reliability is whether or not a survey will yield similar results when given repeatedly. According to Field (2009), the easiest way to determine an instrument's reliability is to test the same sample twice. The two incidences should yield similar

results if the survey is reliable. Validity “is whether an instrument actually measures what it sets out to measure” (Field, 2009, p. 11). The Academic Integrity Survey has been in use for scientific research since 1990 and has been used by scores of institutions. According to the International Center for Academic Integrity, it is a reliable and valid instrument.

**Data analysis.** Data from the survey was collected within the third party survey software. I exported the data into a Microsoft Excel spreadsheet for import into SPSS. I determined the sample means to conduct further tests. As Field (2009) suggests, I looked at the data graphically by creating a scatter plot, which allowed me to easily identify outliers. Outliers may be removed from the data set as long as doing so will not reduce my sample size below 85. If removing the outliers were to reduce the sample size too much, then I could have used the mean plus two standard deviations method for changing the number (Field, 2009).

The survey data was analyzed with a dependent-means *t*-test to determine if there was a significant difference between the pre-survey and post-survey results. The dependent-means *t*-test was an appropriate statistical treatment to use because I had two data samples and the dependent *t*-test is used when there are two experimental conditions and the sample is the same for both conditions (Field, 2009). For the null hypothesis, I assumed that the independent variable, the online academic integrity tutorial, would have no effect on the participants’ perception of academic integrity, the dependent variable. According to Field (2009), I should have expected the sample means to be roughly the same. If the difference between the sample means was greater than I expected, then I could assume there were actual differences between the samples (Field, 2009). The

larger the difference between the sample means, the more likely it was that the independent variable had an effect. In this scenario, I would have rejected the null hypothesis.

Question one had four subparts to determine the effect of other variables on the change in student perceptions of cheating. An ANOVA test was used to determine if these variables had a significant effect on student perceptions of cheating. Since the ANOVA showed significance, I conducted a multiple independent means *t*-test to determine where the significance existed.

A correlation analysis was used to address questions two and three. To see if two variables are related, a researcher seeks to determine if they covary; in other words, the researcher expects that when one variable deviates from the mean, then the other variable will deviate in a similar fashion (Field, 2009). For question two, the variables were the online academic integrity tutorial and the students' knowledge of the institution's academic integrity policies. For question three, the variables were the online academic integrity tutorial and the students' perceptions of academic integrity. By calculating the covariance, I determined if these two variables were related to each other. If both variables deviated from the mean in the same direction, there was a positive correlation. A negative correlation occurs when one variable deviates from the mean in one direction and the other variable deviates from the mean in the opposite direction (Field, 2009).

### **Limitations and Assumptions**

#### **Limitations**

The primary limitation of this study was access to a student sample large enough to produce enough data for analysis. It was challenging to entice students to participate

in a survey to self-report cheating behaviors. Although the email notifications and the informed consent letter assured students of their anonymity, I expected that most would be reluctant to participate. Even for those students who self-selected into the study, time was a factor. It is understandable that many busy college students cannot spare an hour to participate in research unless there is financial compensation.

Another limitation was that cheating behaviors were self-reported and participation was voluntary. Some students may have chosen not to do the survey because they cheat and feared admitting to such behaviors on a survey. Other students may not have responded truthfully about their cheating behaviors. While survey responses were anonymous, students may not have had faith in the confidentiality of the survey results. McCabe (2005) estimated that cheating is likely higher than the data indicate when students self-report their propensity to cheat.

### **Assumptions**

I made several assumptions about the population of study. First, I assumed that students were honest in their responses to the survey even if the questions asked about past cheating behavior. Second, the students actively took the tutorial and were reflective in learning the material. Last, I assumed that course delivery method was not a significant factor in a student's decision to cheat. There are factors that are better predictors of cheating behavior than course delivery type (Mastin, Peszka, & Lilly, 2009; Şendağ, Duran, and Fraser, 2012).

### **Summary**

The growth of online education has fueled faculty suspicions about the prevalence of student cheating in online courses. The International Center for Academic Integrity

found almost 80% of college students confessed to cheating at least once, but the survey sample was not restricted to students enrolled in online classes (“Facts About Plagiarism,” 2011). Other researchers found cheating to be less prevalent in online classes than in traditional courses (Grijalva, Kerkvliet, & Nowell, 2006). Course delivery type had less of an effect on cheating behavior than other factors such as major and length of time into the semester (Mastin, Peszka, & Lilly, 2009; Şendağ, Duran, & Fraser, 2012). By researching the effect of online academic integrity tutorials on student perceptions of cheating, this study contributed to a better understanding of measures that are effective in assuring the integrity of online programs.

This quantitative study was conducted in 16-, 12- and 8-week classes in a typical semester at a large sized community college in an urban area in the Midwest. The population size had to be at least 85 to perceive a medium effect size using an  $\alpha$ -level of .05 and a statistical power of .8. The results were analyzed using the following tests in SPSS software: analysis of variance (ANOVA), dependent-means *t*-test, independent means *t*-test, and correlation analysis.

### **Chapter 4: Results**

This quantitative study was conducted in the fall 2015 semester at City College (CC), a large sized community college in an urban area in the Midwest. I submitted a sunshine request to the institutional research office at CC to obtain the email addresses for all students enrolled in for-credit courses. The population sample for this research was students enrolled in one or more online classes; however, I could not request emails for this population only because federal privacy laws (FERPA) prohibit institutions from divulging student enrollments. Had the institution provided the list of students enrolled in one or more online classes, then student enrollment information would have been revealed and a violation of FERPA would have occurred. Thus, I requested email addresses for all students; email addresses are considered “directory information” by FERPA and can be released when requested by members of the public. As a result of the sunshine request, CC provided the email addresses for 18,643 students enrolled in for-credit classes during the fall 2015 semester. To ensure the integrity of the information, the email addresses were sent in a locked Excel file via email and the password to unlock the file was sent in a separate email.

To segment students into two groups – those enrolled in online classes and those not enrolled in online classes – I added the following question to both instances of the Academic Integrity Survey: “Are you currently enrolled in an online class?” Based on responses to this question, I was able to sort the sample population to determine which students were enrolled in online classes, the desired population for this research. Similarly, students in the sample were enrolled in online classes of 8-, 12-, and 16-week lengths. Since no online classes of shorter duration were offered during the fall 2015

semester at CC, it was not necessary to ask an additional question to eliminate students enrolled in online classes shorter than eight weeks.

I used the online tool Survey Monkey to administer the surveys and generate the emails to students. The surveys were open for 17 days, from September 12 to September 28. All 18,643 students enrolled in for-credit courses at CC received an email on September 12 explaining the research project. The email included links to the first Academic Integrity Survey, the online academic integrity tutorial, and a second Academic Integrity Survey. The email also contained a link to the informed consent letter and an estimate that it would take approximately an hour to complete all three parts of the research. A reminder email was sent to students one week later on September 19. Students who already completed the first Academic Integrity Survey did not receive a reminder email. Survey Monkey has functionality that allows it to eliminate those students while maintaining their anonymity from the researcher.

It became obvious early in the collection period that few students were completing the pre- and post-survey and the academic integrity tutorial despite the enticement of the chance to win a 32GB iPad Mini. Instructions in the email to students clearly stated that upon completion of the second Academic Integrity Survey, students would be directed to a web form where they could enter to win the iPad Mini. Nonetheless, the completion rate for the second survey was poor compared to that of the first survey.

In an effort to encourage more students to complete all three steps of the research, I enlisted the assistance of faculty teaching online courses. The college's course schedule is freely available on the institution's website. I chose 12 instructors at random and sent

them an email on September 19 explaining the project and asking them to encourage the students enrolled in their online classes to participate. I provided a sample communication they could post in their virtual classroom and email to their students. Three of those instructors replied they had shared the information with their students.

At the end of the collection period, 257 students had completed the first Academic Integrity Survey, but only 33 students had completed the second Academic Integrity Survey. I sorted the responses into two groups: students currently enrolled in one or more online classes and students not enrolled in one or more online classes. For the first Academic Integrity Survey, 119 respondents were enrolled in online classes and 138 respondents were not enrolled in online classes. For the second Academic Integrity Survey, 20 respondents were enrolled in online classes and 13 were not enrolled in online classes.

I further sorted the responses to identify the paired samples. Since the participants were anonymous, I used IP address and participation dates to match pre- and post-survey responses to individual students. This resulted in 14 paired samples that could be used for analysis for this study. Although far short of the 85 respondents needed to perceive a medium effect size using an  $\alpha$ -level of .05 and a statistical power of .8, it was not likely that extending the collection period would yield the desired number of respondents; consequently, I proceeded with analyzing the data.

### **Data Analysis**

The purpose of this research was to determine the effect of an online academic integrity tutorial on students' perceptions of cheating. The Academic Integrity Survey itemizes 29 types of cheating and measures both incidences of cheating and perceptions

of the seriousness of each item. The Academic Integrity Survey also includes a question about students' knowledge of the institution's academic honesty policies. In addition to measuring the effect of an academic integrity tutorial on student perceptions of cheating, my research questions address the correlations between actual incidences of cheating and perceptions, and knowledge of institutional policies and perceptions. This chapter presents the findings in four sections. Section one provides demographic characteristics of the population surveyed. Section two addresses the first research question. Section three addresses the second research question and section four addresses the third research question.

Research Question 1: What is the effect of an online academic integrity tutorial on student perceptions of cheating?

- a. What is the effect of gender on student perceptions of cheating before and after taking the online academic integrity tutorial?
- b. What is the effect of major on student perceptions of cheating before and after taking the online academic integrity tutorial?
- c. What is the effect of age on student perceptions of cheating before and after taking the online academic integrity tutorial?
- d. What is the effect of classification (freshman or sophomore) on student perceptions of cheating before and after taking the online academic integrity tutorial?

To answer the first question, I used a repeated measures design. The survey data for the 14 paired samples was analyzed using a dependent means t-test. I created an index score for each participant's ratings of the seriousness of the 29 types of cheating. These indices

of perception were entered into SPSS to address the question of the effect of the academic integrity tutorial on students' perceptions. A dependent means *t*-test was also conducted for each of the 29 types of cheating to determine effect of the academic integrity tutorial.

To address the question regarding the effect of gender on student perceptions of cheating before and after taking the online academic integrity tutorial, I calculated a difference score between the pre- and post-survey responses. The single difference score for each subject allowed me to test for the variable gender. Because the samples were separated by gender, it is not a repeated measure test. Therefore, I conducted an independent means *t*-test to determine the effect of the independent variable gender on the dependent variable change in perception as indicated by the difference score for each subject.

There were four levels of academic class possible for students to choose. Having four independent variables necessitated running an analysis of variance or ANOVA test. The ANOVA test showed significance; however, additional analysis was needed to determine which variables caused the significance result. Consequently, I conducted a multiple independent means *t*-test on each pair of the levels.

The sample size was too small to determine effect of major and age on student perceptions of cheating before and after taking the online academic integrity tutorial. There were not enough subjects in each level of the independent variables to result in meaningful analysis. I chose not to run analyses on the sample for major and age; nevertheless, future studies on the topic of cheating in online classes should analyze the effect of these two variables.

Research Question 2: How does knowledge of an institution's academic integrity policies correlate to student perceptions of cheating?

Students' knowledge of the institution's academic integrity policies is a dichotomous variable. Students responded either yes or no to this question on the Academic Integrity Survey and I converted those responses to 1 for yes and 2 for no. I correlated these responses to the index score for perception on the pre-survey, before students took the academic integrity tutorial. I created a Box-Whisker Plot using SPSS to visually inspect the data to determine if the data justified a correlational analysis. Had a correlation been evident, a Pearson Correlation would have been warranted. Even though no correlation was evident in the Box-Whisker Plot, I conducted the Pearson Correlation to confirm the results. A point by serial correlation between the index score and the dichotomous variable of policy knowledge would be warranted if a larger sample demonstrated more variability and the visual inspection suggested a possible relationship. This is an area suggested for further research.

Research Question 3: Do student perceptions of cheating correlate to actual incidences of self-reported cheating?

Subject responses on the pre-survey were used to determine if student perceptions of cheating correlate to actual incidences of self-reported cheating. Just as I had done for the perceptions, I created an index score for the self-reported cheating incidences. I created a Scatter Plot using SPSS to visually inspect the data to determine if a correlational analysis was warranted. The Scatter Plot indicated a correlation existed; as a result, I conducted a Pearson R Correlation test.

### Section One: Demographic Information of the Population

The Academic Integrity Survey collects demographic information about respondents. The data collected includes gender, age, enrollment status, domestic or international student, marital status, current living situation, academic major, approximate grade point average, and extracurricular and non-academic activities such as employment, athletics, and clubs. The respondents were mostly female, between the ages of 18 and 40, in their second year of academic study. Interestingly, one respondent reported being an international student. The demographic characteristics of the population sample appear in the following figures and tables.

As shown in Figure 1, the respondents were mostly female, with only 21% of the participants indicating their gender as male. The Academic Integrity Survey includes a third category for *trans or other gender identity*, but no respondents chose this option.

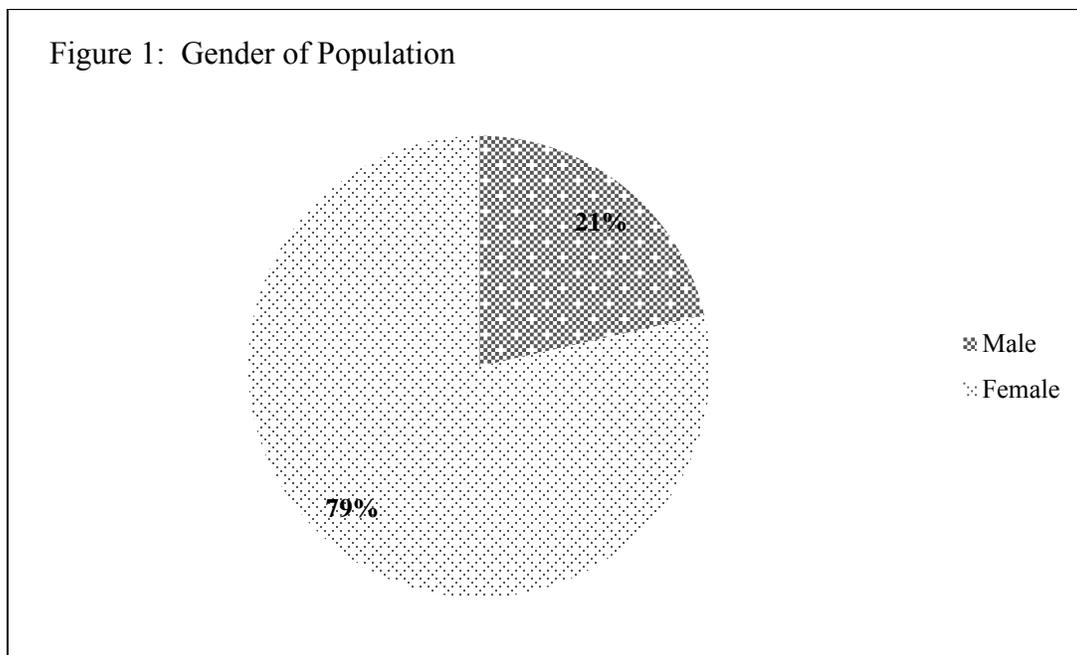


Figure 2 shows that the vast majority of respondents were between the ages of 18 and 40; 36% reported being in the 18 – 24 category and 43% reported being in the 25 –

40 category. Only one respondent was under age 18 and two respondents were age 40 or older. The age categories are part of the Academic Integrity Survey and were not changed for this study.

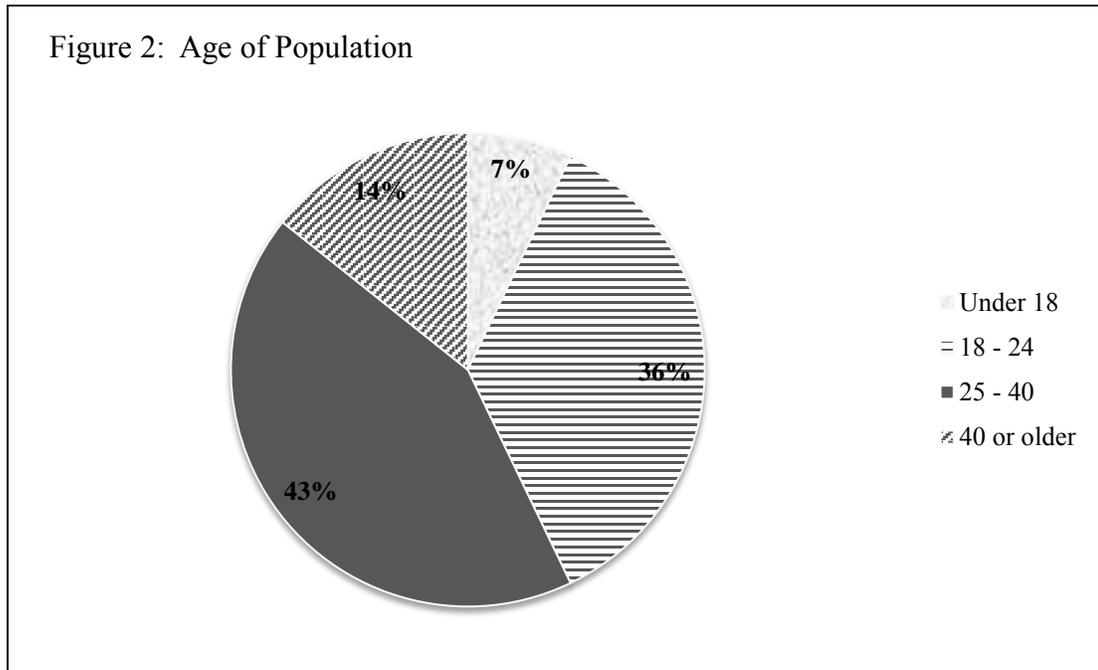


Figure 3 illustrates the classification of the study population. Nine students, or 65%, were sophomores and 14% were freshman. One respondent was non-degree-seeking and was likely taking a class or two at CC to transfer to a home institution. Two respondents were taking classes for continuing education purposes. The Academic Integrity Survey includes 14 options for academic class standing. Since the population sample attends community college where sophomore is the highest academic class standing possible, the options for undergraduate class beyond sophomore, master's degree, and terminal degree were removed from the surveys given as part of this study. Only the four categories reported in the chart above were provided to respondents.

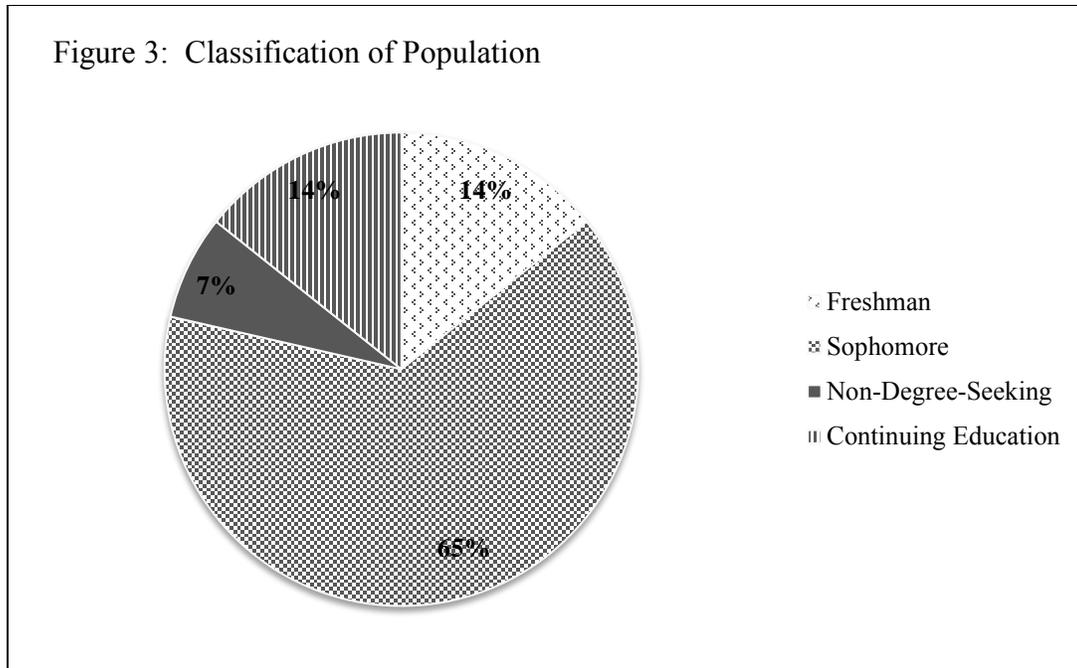
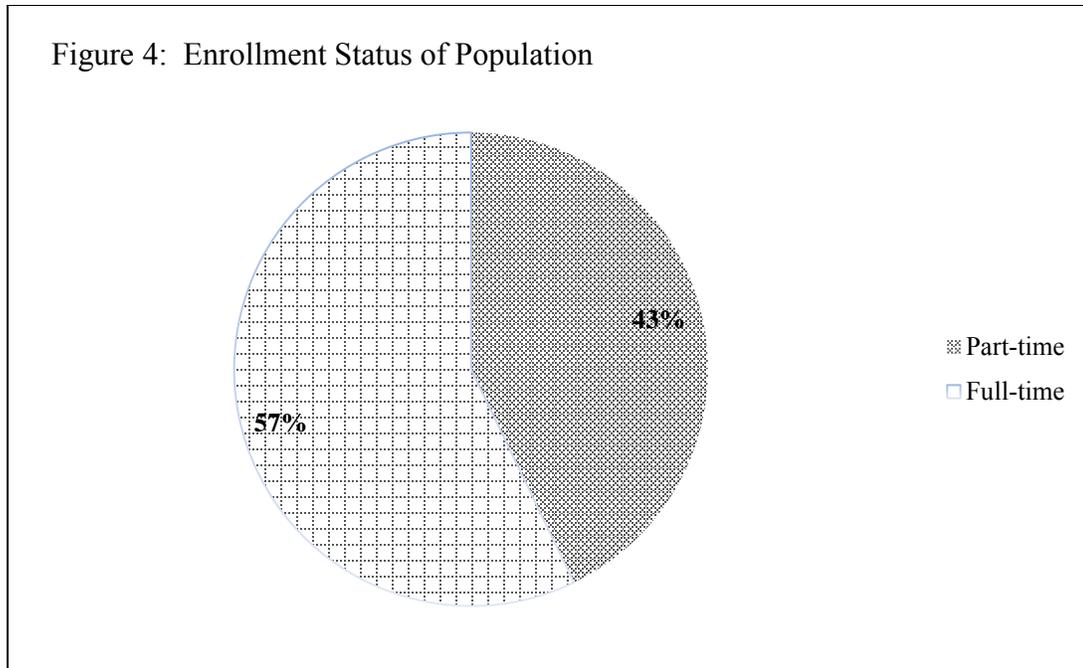


Figure 4 shows an interesting phenomenon about this population. Of the respondents, 57% reported being full-time students (enrolled in 12 credit hours or more) while only 43% reported being part-time (enrolled in fewer than 12 credit hours). According to CC's fall 2015 *Student Body Profile* report, only 41% of students are full-time while 59% attend part-time.



The list of declared or intended academic major included in the Academic Integrity Survey was modified to reflect the program offerings at CC. The 2015-2016 college catalog is available on the institution's website and I used the list of programs in the catalog to populate the options in the survey: There were 73 majors included. I narrowed the list of majors somewhat by listing major category rather than all the concentrations available under each program. For example, students majoring in human services can choose the associate of applied science degree in human services or human services: disabilities studies. A breakdown of the academic population is provided in Table 1. For the purpose of this study, it seemed unnecessary to capture the nuances between the two options. It was satisfactory to know that a respondent was a human services major.

Seven different majors were reported by respondents in the paired sample group and these majors are listed in Table 1. Interestingly, four respondents were education majors. Of the 12 faculty members asked to notify students in their online classes about

this research project, one taught seven online classes in the fall 2015 semester. It is likely these are students in one of those classes. Three respondents were general transfer majors, which is not surprising since community colleges offer an associate of arts degree that is intended as a transfer degree to a 4-year institution. The majority of enrollment at a community college is typically in the associate of arts general transfer degree program. The other majors represent students in either an associate of applied science degree or certificate program.

Table 1

*Academic Major or Population*

Academic Major	Number
Accounting	2
Education	4
General Transfer Studies	3
Information Systems	1
Nursing	2
Office Information Systems	1
Quality Technology	1

As Figure 5 illustrates, approximately two-thirds of the respondents were single while 14% were married. One student was divorced and two students marked the “Other” category.

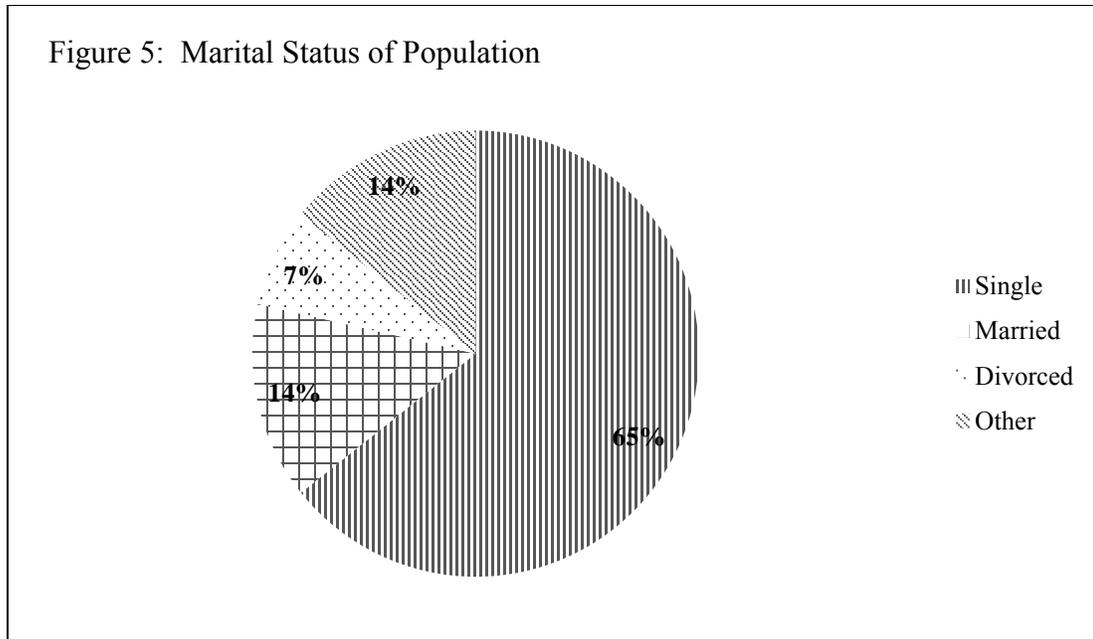


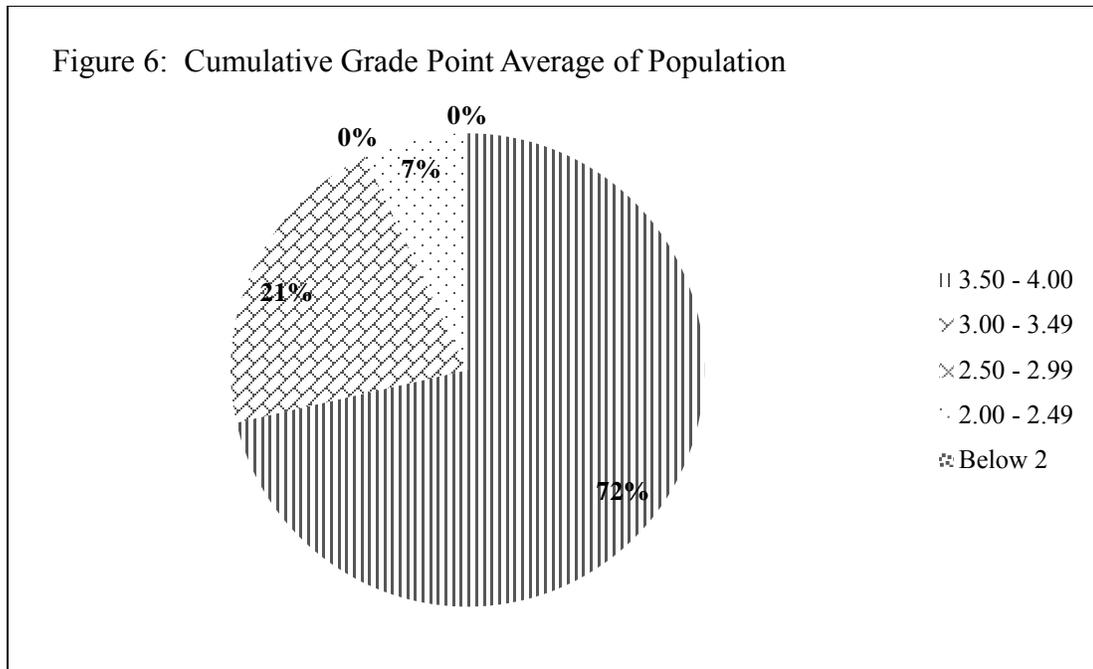
Table 2 provides information about the living situation of the population. Almost half of the respondents were still living at home with their parents. Four students lived in a home by themselves or with others and one student lived in an apartment alone or with roommates. Three students marked the *other* category. The Academic Integrity Survey includes an option of *dorm – alone or with roommates*, but I removed this option since CC does not offer residential dormitories to students. I added the option of *other* to accommodate living situations that did not fall into one of the remaining three categories.

Table 2

*Current Living Situation of Population*

Current Living Situation	Number
Apartment – alone or with roommates	1
Home – alone or with roommates	4
Home – with parents	6
Other	3

Figure 6 shows that nearly three-fourths of the respondents reported having very high cumulative grade point averages, 3.50 or higher. Three students reported a cumulative grade point average in the 3.00 to 3.49 range while one student reported a cumulative grade point average in the 2.00 to 2.49 range. No respondents reported cumulative grade point averages in the 2.50 to 2.99 or below 2.00 ranges.



The students in this sample group were involved in both extracurricular and non-academic activities. All but two of the respondents reported working either a part-time or full-time job. Three respondents worked more than 40 hours per week at their job and two students reported working both a part-time and a full-time job. Half of the respondents cared for a dependent or other family member. Five students reported involvement in a fraternity or sorority, academic club, athletic team, or type of club. One student was a member of student government. In this sample, work and family obligations outweighed social activities.

## Section Two: The Effect of an Online Academic Integrity Tutorial on Student Perceptions of Cheating

**H<sub>01</sub> An online academic integrity tutorial has no effect on student perceptions of cheating.**

Research question one examined the effect of an online academic integrity tutorial on student perceptions of cheating. Tables 3 and 4 display the results of the dependent means *t*-test, which was calculated using the index scores of student perceptions on the pre-survey and the post-survey. The paired samples *t*-test found there was no significant effect. Therefore, I accepted the null hypothesis that an online academic integrity tutorial has no effect on student perceptions of cheating. Student perceptions of cheating before completing the academic integrity tutorial ( $M = 101.07$ ,  $SE = 2.89$ ) were not significantly different from student perceptions of cheating after completing the academic integrity tutorial ( $M = 103.64$ ,  $SE = 4.11$ ),  $t(13) = -1.06$ ,  $p > .05$ ,  $r = .08$ .

Table 3

### *Perceptions of Cheating Before and After Tutorial*

Tutorial Perception	n	<i>M</i> ( <i>SD</i> )	Std. Error Mean
Before	14	101.07 (10.82)	2.89
After	14	103.64 (15.39)	4.11

Table 4

### *Effect of the Tutorial Using Index Scores*

<i>M</i> ( <i>SD</i> )	Std. Error Mean	t	df	Sig. (t-tailed)
2.57 (9.05)	2.42	-1.06	13	.31

Even though the *t*-test conducted on the index scores revealed no significant difference in student perceptions of cheating before and after the academic integrity tutorial, I conducted a dependent means *t*-test on each of the 29 types of cheating to determine if there was a significant effect for any of the individual types of cheating. There was a significant effect for five of the 29 types of cheating, as depicted in Table 5.

Table 5

*Perceptions of 5 Types of Cheating Behaviors*

	<i>M (SD)</i>	Std. Error Mean	<i>t</i>	df	Sig. (t-tailed)
Fabricating or falsifying a bibliography	-.38 (.50)	.13	-2.69	13	.019
Unpermitted help on an assignment	-.38 (.50)	.13	-2.69	13	.019
Paraphrasing of copying a few sentences of material from an electronic source without footnoting them in a paper	-.29 (.49)	.13	-2.28	13	.040
Submitting the same paper in more than once course without specific permission	-.57 (.76)	.20	-2.83	13	.014
Using Cliff Notes of Spark Notes and not citing	-.29 (.49)	.13	-2.28	13	.040

Students were significantly more likely to perceive fabricating or falsifying a bibliography as cheating after completing the academic integrity tutorial ( $M = 3.64$ ,  $SE = .17$ ) than before completing the academic integrity tutorial ( $M = 3.29$ ,  $SE = .19$ ),  $t(13) = -2.69$ ,  $p < .05$ ,  $r = .29$ .

Students were significantly more likely to perceive receiving unpermitted help on an assignment as cheating after completing the academic integrity tutorial ( $M = 3.43$ ,  $SE = .20$ ) than before completing the academic integrity tutorial ( $M = 3.07$ ,  $SE = .22$ ),  $t(13) = -2.69$ ,  $p < .05$ ,  $r = .29$ .

Students were significantly more likely to perceive paraphrasing of copying a few sentences of material from an electronic source without footnoting them in a paper as cheating after completing the academic integrity tutorial ( $M = 3.50$ ,  $SE = .20$ ) than before completing the academic integrity tutorial ( $M = 3.21$ ,  $SE = .24$ ),  $t(13) = -2.28$ ,  $p < .05$ ,  $r = .29$ .

Students were significantly more likely to perceive submitting the same paper in more than once course without specific permission as cheating after completing the academic integrity tutorial ( $M = 3.21$ ,  $SE = .26$ ) than before completing the academic integrity tutorial ( $M = 2.64$ ,  $SE = .32$ ),  $t(13) = -2.83$ ,  $p < .05$ ,  $r = .38$ .

Students were significantly more likely to perceive using Cliff Notes of Spark Notes and not citing as cheating after completing the academic integrity tutorial ( $M = 3.50$ ,  $SE = .17$ ) than before completing the academic integrity tutorial ( $M = 3.21$ ,  $SE = .19$ ),  $t(13) = -2.28$ ,  $p < .05$ ,  $r = .29$ .

For the other 24 types of cheating behavior itemized on the Academic Integrity Survey, student perceptions were not significantly affected by completing the academic integrity tutorial. Table 6 itemizes the specific types of cheating behaviors where the dependent means  $t$ -test detected no significance.

Table 6

*Perceptions of 24 Types of Cheating Behaviors*

	M (SD)	Std. Error Mean	t	df	Sig. (t-tailed)
Working on an assignment with others (in person) when the instructor asked for individual work.	-.07 (.83)	.22	-.32	13	.75
Working on an assignment with others (via email of Instant Messaging) when the instructor asked for individual work.	-.14 (.66)	.18	-.81	13	.44
Getting answers from someone who has already taken a test.	-.21 (.80)	.21	-1.00	13	.34
In a course requiring computer work, copying another student's program rather than writing your own.	.00 (.68)	.18	.00	13	1.00
Helping someone else cheat on a test.	-.21 (.43)	.11	-1.88	13	.08
Fabricating or falsifying lab data.	-.14 (.36)	.10	-1.47	13	.17
Fabricating or falsifying research data.	-.14 (.36)	.10	-1.47	13	.17
Copying from another student during a test WITH his or her knowledge.	.14 (.66)	.18	.81	13	.44
Copying from another student during a test WITHOUT his or her knowledge.	.14 (.36)	.10	1.47	13	.17

*Perceptions of 24 Types of Cheating Behaviors, Cont.*

	M (SD)	Std. Error Mean	t	df	Sig. (t-tailed)
Using digital technology (such as text messaging) to get unpermitted help from someone during a test or examination.	.14 (.66)	.18	.81	13	.44
Copying (by hand or in person) another student's homework.	.14 (.66)	.18	.81	13	.44
Copying (by digital means such as Instant Messaging or email) another student's homework.	.14 (.77)	.21	.69	13	.50
Paraphrasing or copying a few sentences from a book, magazine, or journal (not electronic or web-based) without footnoting them in a paper you submitted.	-.21 (.43)	.11	-1.88	13	.08
Turning in a paper from a "paper mill" (a paper written and previously submitted by another student) and claiming it as your own work.	.07 (.27)	.07	1.00	13	.34
Submitting a paper you purchased or obtained from a website and claimed it as your own work.	.14 (.53)	.14	1.00	13	.34
Using unpermitted handwritten crib notes (or cheat sheets) during a test or exam.	-.14 (.77)	.21	-.69	13	.50

*Perceptions of 24 Types of Cheating Behaviors, Cont.*

	M (SD)	Std. Error Mean	t	df	Sig. (t-tailed)
Using electronic crib notes (stored in tablet, phone, or calculator) to cheat on a test of exam.	-.21 (.58)	.15	-1.39	13	.19
Using an electronic/digital device as an unauthorized aid during an exam.	-.07 (.47)	.13	-.56	13	.58
Copying material, almost word for word, from any written source and turning it in as your own work.	.14 (.53)	.14	1.00	13	.34
Turning in a paper copied, at least in part, from another student's paper, whether or not the student is currently taking the same course.	-.07 (.27)	.07	-1.00	13	.34
Using a false or forged excuse to obtain an extension on a due date or delay taking an exam.	-.29 (.83)	.22	-1.30	13	.22
Turning in work done by someone else.	.07 (.27)	.07	1.00	13	.34
Receiving requests from another person (in person or using electronic means) to copy your homework.	.00 (.55)	.15	.00	13	1.00
Cheating on a test in any other way.	.07 (.62)	.16	.43	13	.67

**H<sub>01a</sub> Gender had no effect on the difference in student perceptions of cheating before and after taking an academic integrity tutorial.**

This research question examined the effect of gender on student perceptions of cheating before and after taking an online academic integrity tutorial. Table 7 shows the results of the independent means *t*-test, which was calculated using the difference scores of student perceptions from the pre-survey to the post-survey. The independent means *t*-test found that there was no significant effect. Therefore, I accepted the null hypothesis that gender has no effect on student perceptions of cheating before and after taking an online academic integrity tutorial. On average, the gender of male had no effect ( $M = -7.67$ ,  $SE = 3.18$ ) and the gender of female had no effect ( $M = -1.18$ ,  $SE = 2.87$ ) on student perceptions of cheating before and after taking an online academic integrity tutorial. The difference assuming equal variances was not significant  $t(13) = 1.11$ ,  $p > .05$ ,  $r = .09$ . The difference assuming unequal variances was not significant  $t(13) = 1.51$ ,  $p > .05$ ,  $r = .15$ .

Table 7

*Effect of Gender on Change in Perception*

Gender	n	M (SD)	Std. Error Mean
Male	3	-7.67 (5.51)	3.18
Female	11	-1.18 (9.52)	2.87

**H<sub>11d</sub> Classification had a significant effect on the difference in student perceptions of cheating before and after taking an academic integrity tutorial.**

This research question examined the effect of classification (freshman, sophomore, non-degree-seeking, or continuing education) on student perceptions of

cheating before and after taking an online academic integrity tutorial. Table 8 shows the results of an analysis of variance (ANOVA) test, which was calculated using the difference scores of student perceptions from the pre-survey to the post-survey. The ANOVA test found that there was a significant effect between groups. Therefore, I rejected the null hypothesis that classification has no effect on student perceptions of cheating before and after taking an online academic integrity tutorial.

Table 8

*Results of ANOVA for Effect of Classification*

	df	Mean Square	F	Sig.
Between Groups	3	198.24	4.21	.04
Within Groups	10	47.07		
Total	13			

On average, subjects classified as a freshman were more likely to experience a difference ( $M = -10.50$ ,  $SE = 11.50$ ) than subjects classified as a sophomore ( $M = -4.44$ ,  $SE = 1.68$ ) between the pre- and post-test. The difference assuming equal variances was significant  $t(13) = 2.65$ ,  $p < .05$ ,  $r = .09$ . The difference assuming unequal variances was not significant  $t(13) = 1.29$ ,  $p > .05$ ,  $r = .11$ . Table 9 depicts these findings.

Table 9

*Difference between Freshmen and Sophomores*

Classification	n	$M (SD)$	Std. Error Mean
Freshman	2	10.5 (16.26)	11.5
Sophomore	9	-4.44 (5.05)	1.68

Generally, subjects classified as a freshman were not more likely to experience a difference ( $M = -10.50$ ,  $SE = 11.50$ ) than subjects classified as a continuing education student ( $M = .00$ ,  $SE = 1.00$ ) between the pre- and post-test. The difference assuming equal and unequal variances was not significant  $t(13) = .91$ ,  $p > .05$ ,  $r = .06$ . Table 10 shows these deviations.

Table 10

*Difference between Freshmen and Continuing Education*

Classification	n	<i>M (SD)</i>	Std. Error Mean
Freshman	2	10.5 (16.26)	11.5
Continuing Ed.	2	.00 (1.41)	1.00

On average, subjects classified as a sophomore were not more likely to experience a difference ( $M = -4.44$ ,  $SE = 1.68$ ) than subjects classified as a continuing education student ( $M = .00$ ,  $SE = 1.00$ ) between the pre- and post-test. The difference assuming equal and unequal variances was not significant  $t(13) = -1.19$ ,  $p > .05$ ,  $r = .10$ . Table 11 presents these differences.

Table 11

*Difference between Sophomore and Continuing Education*

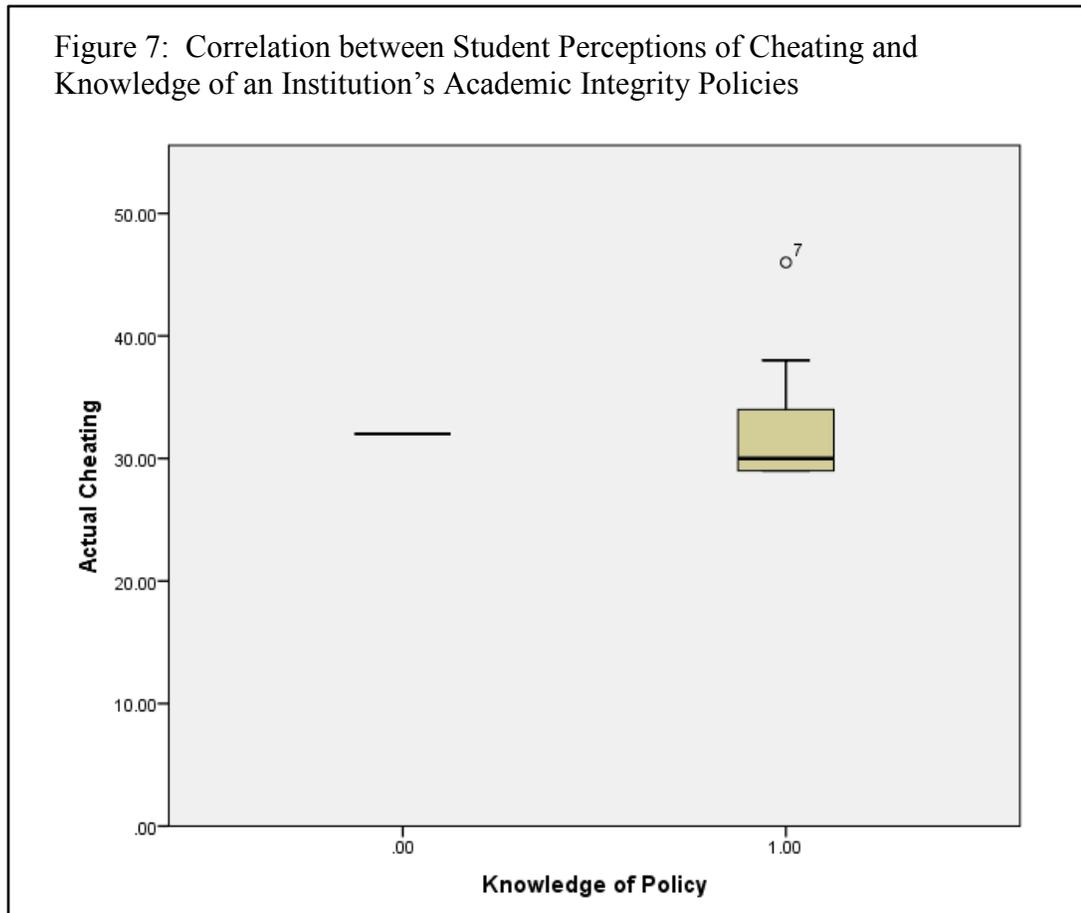
Classification	n	<i>M (SD)</i>	Std. Error Mean
Sophomore	9	-4.44	1.68
Continuing Ed.	2	.00	1.00

There was only one student classified as non-degree-seeking in the sample. This is not a sufficient sample size to compare to the other classification groups.

### Section Three: Correlation between Student Perceptions of Cheating and Knowledge of an Institution's Academic Integrity Policies

**H<sub>02</sub> Student perceptions of cheating do not correlate to knowledge of an institution's academic integrity policies.**

Research question two examines the correlation between student perceptions of cheating and the subject's knowledge of the institution's academic integrity policies. The Box-Whisker Plot featured in Figure 7 shows there is no correlation between student perceptions of cheating and knowledge of the institution's academic integrity policies.



Since no correlation was indicated, it was not necessary to perform a Pearson Correlation test. Nonetheless, I conducted the bivariate analysis as an extra measure to determine correlation. The results are shown in Table 12. As expected, no correlation was revealed. Therefore, I accepted the null hypothesis that there is no correlation between student perceptions of cheating and knowledge of the institution's academic integrity policies.

Table 12

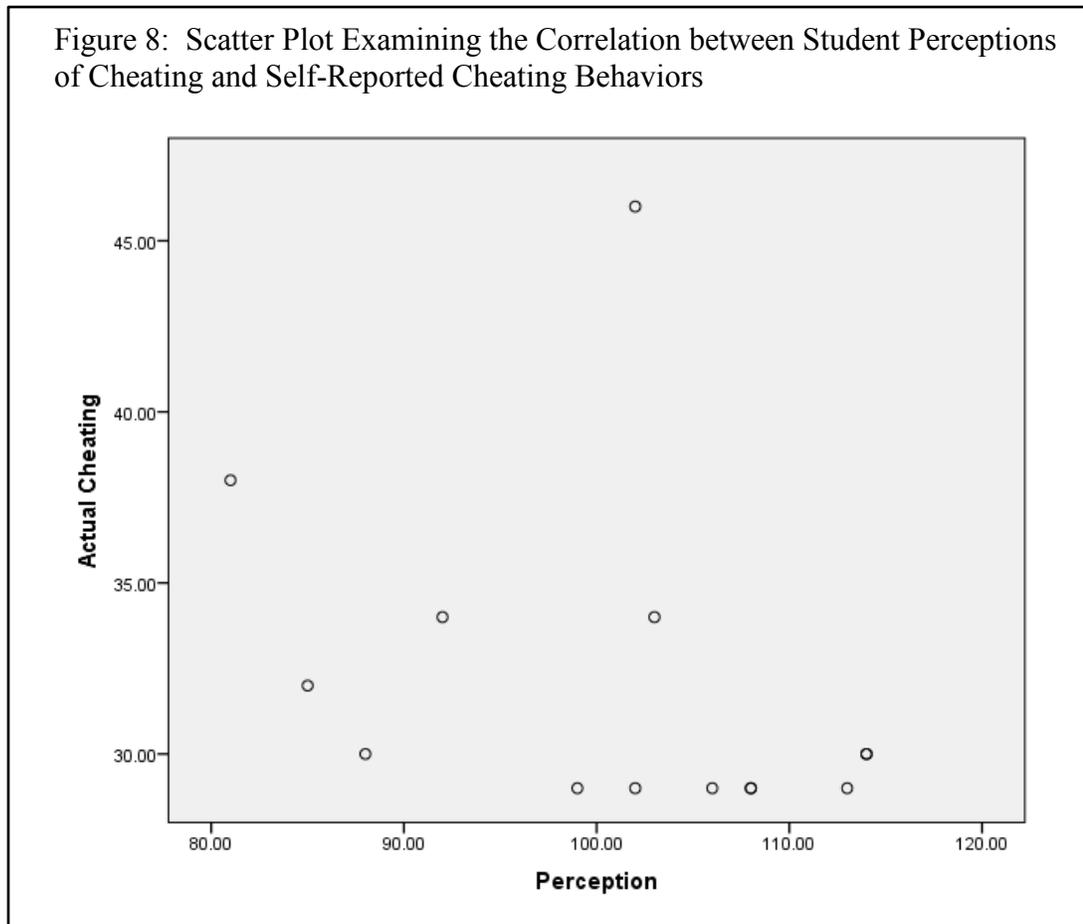
*Correlation between Knowledge of Policy and Perceptions of Cheating*

<b>Correlations</b>		
	Knowledge of Policy	Actual Cheating
Knowledge of Policy	Pearson Correlation	1
	Sig. (2-tailed)	.000
	N	14
Actual Cheating	Pearson Correlation	1
	Sig. (2-tailed)	.000
	N	14

**Section Four: Correlation between Incidences of Self-Reported Cheating and Student Perceptions of Cheating**

**H<sub>03</sub> An online academic integrity tutorial has no effect on student perceptions of cheating.**

Research question three examines the correlation between student perceptions of cheating and actual incidences of self-reported cheating. The Scatter Plot featured in Figure 8 shows there is no correlation between student perceptions of cheating and self-reported cheating incidents.



Since no correlation was indicated, it was not necessary to perform a Pearson Correlation test. Nonetheless, I conducted the bivariate analysis as an extra measure to determine correlation. The results are shown in Table 13. As expected, no correlation was revealed. Therefore, I accepted the null hypothesis that there is no correlation between student perceptions of cheating and self-reported cheating incidents.

Table 13

*Correlation between Perceptions of Cheating and Self-Reported Cheating*

<b>Correlations</b>			
	Perception	Actual Cheating	
Perception	Pearson Correlation	1	-.346
	Sig. (2-tailed)		.226
	N	14	14
Actual Cheating	Pearson Correlation	-.346	1
	Sig. (2-tailed)	.226	
	N	14	14

**Summary**

The content of chapter four focused on addressing the three primary research questions and the four secondary questions that are part of question 1.

Research Question 1: What is the effect of an online academic integrity tutorial on student perceptions of cheating?

- a. What is the effect of gender on student perceptions of cheating before and after taking the academic integrity tutorial?
- b. What is the effect of major on student perceptions of cheating before and after taking the academic integrity tutorial?
- c. What is the effect of age on student perceptions of cheating before and after taking the academic integrity tutorial?
- d. What is the effect of classification (freshman or sophomore) on student perceptions of cheating before and after taking the online academic integrity tutorial?

Research Question 2: How does knowledge of an institution's academic integrity policies correlate to student perceptions of cheating?

Research Question 3: Do student perceptions of cheating correlate to actual incidences of self-reported cheating?

Dependent means *t*-tests were used to determine the effect of an online academic integrity tutorial on student perceptions of cheating. An ANOVA and independent means *t*-test were used to determine the effect of gender, major, age, and classification on the change in student perceptions of cheating. A Box-Whisker Plot was used to determine if there was evidence of a correlation between student perceptions of cheating and knowledge of institutional academic integrity policies. A Scatter Plot was used to determine if there was evidence of a correlation between student perceptions of cheating and actual incidences of self-reported cheating. A Pearson Correlation was used to verify the results of the Box-Whisker Plot and the Scatter Plot for questions two and three.

The analysis revealed that an online academic integrity tutorial has no significant effect on student perceptions of cheating when index scores were used. However, when a dependent means *t*-test was conducted for each of the 29 types of cheating behaviors measured as part of the Academic Integrity Survey, there were significant results for five of the 29 items.

The sample size was too small to successfully analyze the effect of major and age on the change in student perceptions of cheating. The variable gender showed no effect, but there was a significant effect between classification groups. Freshmen were likely to experience a change in their perception compared to other classifications.

A student's knowledge of the institution's academic integrity policies did not correlate to perceptions of cheating. Similarly, there was no correlation between student perceptions of cheating and actual incidents of self-reported cheating.

## **Chapter 5: Analysis and Implications**

In chapter five I discuss the findings presented in chapter four. The content of chapter five is divided into seven sections as follows: statement of the problem, summary of the research methods, discussion of the findings, further research, limitations of the study, implications for policy and practice, and a summary.

### **Statement of the Problem**

There is a plethora of research about cheating in traditional classroom settings, but fewer studies have been conducted to provide an accurate picture of the prevalence of cheating in online courses. While many academics believe cheating is rampant in online courses, the existing research does not support that assumption (Baron & Crooks, 2005; Spaulding, 2009). In fact, other factors have been found to affect cheating behaviors more significantly than course delivery type. For example, Şendağ, Duran, and Fraser (2012) found that classification and major were effective predictors of cheating. Similarly, a study by Mastin, Peska, and Lilly (2009) showed that time of semester was also an indicator as students were more likely to cheat at the end of a term than at other times.

According to Dillé (2011), course delivery type has no significant effect on whether or not students cheat. Nevertheless, college faculty and administrators need more information about how cheating is manifested in online classes and how to prevent it to guide the development of effective academic integrity policies and deterrents to cheating. This study sought to determine the effectiveness of online academic integrity tutorials on student perceptions of cheating. Perhaps, if students are better informed

about what constitutes cheating, and if institutions formulate effective deterrents, then cheating violations can be reduced.

### **Summary of the Methods**

The purpose of this research was to determine the effect of an online academic integrity tutorial on students' perceptions of cheating. I used the *Academic Integrity Survey* as the tool to measure student perceptions of cheating as well as actual incidences of self-reported cheating. The Academic Integrity Survey has been used for several decades and is a premier tool in academic honesty research.

This quantitative study was conducted at City College, a large sized community college in an urban area in the Midwest. I sent an email to 18,643 CC students enrolled in for-credit classes during the fall 2015 semester. To segment the students enrolled in one or more online classes, I added the following question to both instances of the Academic Integrity Survey: "Are you currently enrolled in an online class?" Based on responses to this question, I sorted the sample population to determine which students were enrolled in online classes, which is the desired population for this research. All online classes at CC during the fall 2015 semester were eight, 12, or 16 weeks in length.

I used the online tool Survey Monkey to administer the surveys and generate the emails to students. The email included links to the first Academic Integrity Survey, the academic integrity tutorial, and the second Academic Integrity Survey. The surveys were open for 17 days, from September 12 to September 28. The initial email invitation to participate in the research project was sent on September 12 and a reminder email was sent to students one week later on September 19. Students who already completed the first survey did not receive a reminder email. In an effort to increase the response rate

midway through the project, twelve online course instructors – chosen at random from the course schedule – were asked to encourage their students to participate. Three of those instructors replied that they had shared the information with their students.

All students who completed all three parts of the research project were eligible to enter a drawing for a 32GB iPad Mini. Instructions in the email to students clearly stated that upon completion of the second survey, students would be directed to a web form where they could enter to win the iPad Mini. Nonetheless, the completion rate for the second survey was poor compared to that of the first survey: 257 students completed the first Academic Integrity Survey, but only 33 students had completed the second Academic Integrity Survey. After separating the students enrolled in online classes, and pairing the samples on the pre- and post-surveys, the sample size for this research was 14, a number far short of the 85 respondents needed to perceive a medium effect size using an  $\alpha$ -level of .05 and a statistical power of .8. The sample size of the study was a limitation that will be discussed later in this chapter.

The research questions for this study are:

1. What is the effect of an online academic integrity tutorial on student perceptions of cheating?
  - a. What is the effect of gender on student perceptions of cheating before and after taking the online academic integrity tutorial?
  - b. What is the effect of major on student perceptions of cheating before and after taking the online academic integrity tutorial?
  - c. What is the effect of age on student perceptions of cheating before and after taking the online academic integrity tutorial?

- d. What is the effect of classification (freshman or sophomore) on student perceptions of cheating before and after taking the online academic integrity tutorial?

H<sub>01</sub> An online academic integrity tutorial has no effect on student perceptions of cheating.

H<sub>01a</sub> Gender had no effect on the difference in student perceptions of cheating before and after taking an academic integrity tutorial.

H<sub>11d</sub> Classification has a significant effect on the difference in student perceptions of cheating before and after taking an academic integrity tutorial.

The sample size was too small to conduct analysis for questions 1b and 1c; therefore, no determination to accept or reject the null hypothesis could be made.

1. How does knowledge of an institution's academic integrity policies correlate to student perceptions of cheating?

H<sub>02</sub> Student perceptions of cheating do not correlate to knowledge of an institution's academic integrity policies.

1. Do student perceptions of cheating correlate to actual incidences of self-reported cheating?

H<sub>03</sub> An online academic integrity tutorial has no effect on student perceptions of cheating.

To answer the first question, dependent means *t*-tests were conducted for each of the 29 types of cheating. A dependent means *t*-test was also conducted on index scores for each subject. I used a repeated measures design. An independent means *t*-test was used to analyze the effect of gender on student perceptions of cheating before and after

taking the online academic integrity tutorial. An ANOVA test was used to determine if the four levels of classification had a significant effect on student perceptions of cheating. I conducted a multiple independent means t-test on each pair of the levels to determine where the significance existed. The sample size was too small to determine effect of major and age on student perceptions of cheating before and after taking the online academic integrity tutorial.

To address question two, I created a Box-Whisker Plot to visually inspect the data to determine if the data justified a correlational analysis. The Box-Whisker Plot revealed no correlation; nonetheless, I conducted a Pearson Correlation to confirm no correlation existed.

I created a Scatter Plot to address question three. Upon visual inspection of the data, it was evident that a correlation existed. I conducted a Pearson Correlation test to confirm the correlation results.

### **Discussion of the Findings**

Because of the low sample size, it would be irresponsible to draw steadfast conclusions from the results of this study. Since there were only 14 paired samples, there were not enough degrees of freedom in significance testing to result in p-values low enough for significance. Thus, I report most of the findings in terms of group averages. Since this is the first study examining the effect of an online academic integrity tutorial on student perceptions of cheating for students enrolled in online classes at a community college, this research should be considered as preliminary. Further research with larger sample sizes would be needed to confirm or disprove the results reported and discussed here.

For question one, I accepted the null hypothesis that an online academic integrity tutorial has no effect on student perceptions of cheating. The dependent means *t*-test conducted using the index scores on the pre- and post-surveys showed no significant effect. Even though no effect was detected, I conducted a dependent means *t*-test on each of the 29 types of cheating included in *the Academic Integrity Survey*. Interestingly, the results showed a significant for five of the 29 types of cheating. The results for these five *t*-tests are summarized in Table 14.

Table 14

*Perceptions of 5 Types of Cheating Behaviors*

	Mean (SD)	Std. Error Mean	t	df	Sig. (t-tailed)
Fabricating or falsifying a bibliography.	-.38 (.50)	.13	-2.69	13	.019
Unpermitted help on an assignment.	-.38 (.50)	.13	-2.69	13	.019
Paraphrasing of copying a few sentences of material from an electronic source without footnoting them in a paper.	-.29 (.49)	.13	-2.28	13	.040
Submitting the same paper in more than once course without specific permission.	-.57 (.57)	.20	-2.83	13	.014
Using Cliff Notes of Spark Notes and not citing.	-.29 (.49)	.13	-2.28	13	.040

Further research is needed to explain why there is an effect for a few of the types of cheating, but not for the others. I posit some forms of cheating are more obvious,

especially to college-age students. Getting answers from someone who has already taken a test, copying from another student's test, and copying someone else's homework are forms of cheating that are routinely discussed throughout one's academic career. "Don't copy" is a warning often heard in classrooms from the early grades through high school. Furthermore, some of the behaviors listed in the Academic Integrity Survey included the word "cheating" in the statement or contained words like "false" and "forged", which denote dishonesty by their very definition.

The forms of cheating listed in Table 14 are less conspicuous and students may be less likely to identify these behaviors as cheating. For example, in a 2011 study, Jones found that only 50% of students correctly identified paraphrasing without citations as a violation of academic honesty. Many students may also believe submitting a paper that is their own work for credit in more than one class is completely acceptable. Frankly, despite two decades in education, seeing that listed as a form of cheating on the Academic Integrity Survey was a surprise to me. I even encouraged students to save papers because they may be able to use them in other classes with revisions. I see revisiting previous work as a means to encourage students to improve their writing and thinking skills. Obviously, not all academics share this philosophy. Recognizing that I have, in fact, encouraged students to cheat makes it apparent that students receive confusing messages about academic honesty.

The four sub-questions to question one explore the effect of demographic characteristics on the difference in student perceptions of cheating between the pre- and post-survey. The sample size was not large enough to conduct analysis for major and

age. There were not enough students in each category to justify yield meaningful results for any analysis.

The sample size was large enough to test the effect of gender and classification. I accepted the null hypothesis that gender has no effect on student perceptions of cheating before and after taking an online academic integrity tutorial because the results of the independent means *t*-test found there was no significant effect. I conducted an ANOVA test to determine if classification had a significant effect on the difference in student perceptions of cheating before and after taking an online academic integrity tutorial. The ANOVA test found there was a significant effect between groups. Consequently, I rejected the null hypothesis that classification has no effect on student perceptions of cheating before and after taking an online academic integrity tutorial. I conducted a multiple independent means *t*-test on each pair of the levels to determine where the significance existed. The multiple independent means *t*-test results showed freshmen were more likely to change their perceptions as result of the academic integrity tutorial than sophomores. This is consistent with research conducted by Şendağ, Duran, and Fraser (2012) who found freshmen were more likely to cheat. It makes sense that freshmen would be less knowledgeable about the institution's expectations for academic honesty and would benefit more from tutorials than other groups.

Research question two examined the correlation between student perceptions of cheating and the subject's knowledge of the institution's academic integrity policies. The Box-Whisker Plot presented in Chapter 4, Figure 7 showed there was no correlation between student perceptions of cheating and knowledge of the institution's academic integrity policies. As a result, I accepted the null hypothesis there is no correlation

between student perceptions of cheating and knowledge of the institution's academic integrity policies.

Since only one respondent reported not knowing about the institution's academic integrity policies, it is not possible to determine if a correlation exists. The subject who did not know about the institution's academic integrity policies is below the 1st quartile of the initial perception score distribution for the group. The mean score for the group who knew about the institution's academic integrity policies was 102.31. The mean score for the participant who did not know about the institution's academic integrity policies was 85.00, a number approximately 1.49 standard deviations below the mean of 101.10. Additionally, this person had the second lowest perception score of the 14 respondents. From this very limited sample size, it appears that there may be a link between knowledge of an institution's academic integrity policies and perceptions of cheating; however, this sample size is too small to determine if there is a correlation. More research is needed with a large sample size to determine if a correlation exists.

Research question three examined the correlation between student perceptions of cheating and actual incidences of self-reported cheating. The Scatter Plot shown in Chapter 4, Figure 8 shows no evidence of a correlation between student perceptions of cheating and their self-reported cheating behaviors. I conducted a Pearson Correlation, but as expected, no correlation was revealed. I accepted the null hypothesis that there is no correlation between student perceptions of cheating and self-reported cheating incidents.

The visual inspection of the data in the Scatter Plot revealed an outlier. I removed the outlier and conducted a second Pearson Correlation for the purposes of discussion.

The results of the Pearson Correlation are shown in Table 16. When the outlier was removed, there was a correlation between perceptions of cheating and cheating behavior. This suggests that a statistically significant negative relationship exists between perceptions of cheating and cheating behaviors reported on the pre-survey. However, further research should be conducted with larger sample sizes.

Table 15

*Correlation with Outlier Removed*

		<b>Perception</b>	<b>Actual Cheating</b>
Perception	Pearson Correlation	1	-.658*
	Sig. (2-tailed)		.014
	N	13	13
Actual Cheating	Pearson Correlation	-.658*	1
	Sig. (2-tailed)	.014	
	N	13	13

\* Correlation is significant at the 0.05 level (2-tailed)

If a correlation is found between perceptions of cheating and cheating behaviors, then this is significant for the development of interventions for postsecondary institutions. For example, students could be given a survey of perceptions of cheating upon entrance to an institution. Those students who achieve low scores, meaning they perceive cheating behaviors less seriously, could receive more targeted academic integrity education. Since the penalty for cheating can be expulsion from an institution, it seems worthwhile for institutions to make these efforts.

One interesting phenomenon revealed in the data collected for this study was the index score of perception calculated from responses on the first Academic Integrity Survey were highly indicative of the index score on the post-survey. The pre- and post-survey index scores for the sample population are shown in Table 17.

Table 16

*Pre- and Post-Survey Index Scores*

	<b>Pre-Survey Index Score</b>	<b>Post-Survey Index Score</b>
Subject 1	102	116
Subject 2	108	98
Subject 3	108	112
Subject 4	92	114
Subject 5	114	112
Subject 6	113	113
Subject 7	102	103
Subject 8	85	63
Subject 9	103	103
Subject 10	81	80
Subject 11	88	98
Subject 12	114	116
Subject 13	106	107
Subject 14	99	116

In essence, a subject's perceptions of cheating largely remained unchanged as a result of being exposed to the online academic integrity tutorial, and their initial score was highly predictive of the final perception scores. If students have preconceived notions reinforced by academe since the early grades, it may be difficult for an online tutorial or any intervention to change those perceptions. This seems to imply that efforts to diminish cheating at the college level through education programs aimed at changing student perceptions can have only a minimal effect or no effect at all. It may also imply that efforts to educate students about expectations for academic honesty at the college level may have to begin long before a student's freshman year. More research needs to be conducted in this area to provide clearer implications to guide policy action.

### **Further Research**

The small sample size severely limits this study and necessitates further research on the same questions with a larger sample size to achieve statistically significant results. For example, other studies (Baron & Crooks, 2005) found a positive correlation between knowledge of an institution's academic integrity policies and student perceptions of cheating. This study found no correlation, but the small sample size handicapped the analysis of data collected in this study. Additional research should be conducted on the relationship between student perceptions of cheating and knowledge of an institution's academic integrity policies for students enrolled in online classes.

More research needs to be conducted on the effect of interventions such as an online academic integrity tutorial on student perceptions of cheating. The findings of this study imply that there generally is no effect. Perceptions were significantly affected for only five of the 29 types of cheating behavior. This result seems to imply that efforts to curb student cheating at the postsecondary will have little to no effect, especially if the program is educational in nature. More research is needed to determine the effect of online academic tutorials and other education programs on student perceptions of cheating before these options are eliminated or fully implemented.

When examining classification, the largest effect of the online academic tutorial was on freshmen; this finding is promising for administrators and faculty charged with creating programs to deter cheating at their institutions. Since Şendağ, Duran, and Fraser (2012) found freshmen were more likely to cheat, so efforts to deter cheating should be focused on this group. Additionally, the relationship between students who achieve low scores on the Academic Integrity Survey, meaning they perceive cheating behaviors less

seriously, could receive more targeted academic integrity education. It seems that freshmen are likely to have lower scores than students with other classification.

Education programs like the implementation of an academic integrity tutorial may have more promise for one group over another. Further research with a larger sample size should be conducted to verify the results found in this study. If additional studies find that perceptions of cheating among freshmen change as a result of an online academic integrity tutorial, then college administrators should consider including such an educational tool as part of their overall academic integrity programs.

The sample size was an impediment in determining a correlation between student perceptions of cheating and knowledge of an institution's academic integrity policies. With only one respondent reporting no knowledge of the institution's academic integrity policies, the correlation analysis found no relationship. Other researchers (Baron & Crooks, 2005) have found that a relationship exists: A 10-year study at Duke University found institutions with an academic honesty policy experienced 25-50% less cheating than campuses that did not have such a policy. A larger sample size would yield more meaningful results.

### **Limitations of the Study**

The most obvious limitation to this study was the small sample size. The small sample prohibited conducting analyses on two parts of question one and certainly affected the results of the other tests. Considering there were only 14 paired samples, the degrees of freedom are not sufficient in significance testing to get p-values low enough for establish significance. The data set is so limited it would be premature to jump to conclusions based on the results of this study. Despite the small sample size, some

results are encouraging and additional research should be conducted. For example, on average, scores increased 2.57 points on average after the tutorial. Completing the academic integrity tutorial yielded positive gains for subjects. A larger sample size in a similar study could yield results that are more statistically significant.

Another limitation of the research involves the subjects. First, students self-select to participate in the research, so there is selection bias that could affect the results. Second, students self-report cheating behaviors and they may not respond truthfully about cheating violations. McCabe (2005) estimated that cheating is likely higher than the data indicate when students self-report their propensity to cheat. Last, students may not be confident their responses will be anonymous even though anonymity and confidentiality were assured in the letter of consent. Fear of being exposed may negatively affect the response rate as well as the honesty of the participants.

### **Implications for Policy and Practice**

Libraries have long been at the forefront of plagiarism prevention activities and their role has become more important in the age of technology. Many libraries offer education programs for students and faculty on information literacy including plagiarism prevention sessions (Madray, 2008; and Moniz, Fine & Bliss, 2008). In the article *The Effectiveness of Direct-Instruction and Student-Centered Teaching Methods on Students' Functional Understanding of Plagiarism*, Moniz, Fine and Bliss asserted offering a plagiarism prevention workshop to students is one of the best ways to improve students' understanding of plagiarism and how to avoid it (2008). This study showed an online academic integrity tutorial had an effect in positively changing student perceptions of cheating in 5 the types of cheating behavior. With their history of plagiarism education

and as the purveyors of information literacy on campuses, libraries may be an ideal place to incorporate academic integrity programs.

Freshman are the most likely to commit acts of academic dishonesty, and as this study showed, they are the group most likely to benefit from academic integrity educational tools. Administrators would be wise to start educating students about academic honesty at the freshman level and reinforce that education throughout a student's academic career. There are multiple online academic integrity tutorials available through postsecondary institutions for public use. College administrators should consider including such an educational tool as part of their overall academic integrity programs. If it helps a handful of students avoid the severe penalties associated with violations of academic integrity policies, then it would definitely be a worthwhile endeavor.

Even though no correlation was found between perceptions of cheating and cheating behaviors, there is an implication for practice for colleges and universities. When the outlier was removed from my dataset, there was a correlation between perceptions of cheating and cheating behavior. A student's perception was negatively correlated with the reported behaviors. In other words, a student who perceived a type of cheating as serious was less likely to self-report committing that type of cheating. Implementing an Academic Integrity Survey and providing students with their results could help them identify where they need more education. Likewise, students who perceive many types of cheating as less serious could be eligible to receive a free education program at the institution. Such a program would likely help students be more successful in their college careers and in life.

### **Summary**

The purpose of this research was to determine the effect of an online academic integrity tutorial on students' perceptions of cheating. The research was conducted at a large community college in a Midwestern city. Over 18,000 students were contacted to participate in the study, but only 263 responded. Only 117 of those students were enrolled in online classes during the fall 2015 semester and only 20 of those completed both surveys. After the samples were paired, the sample size was 14. The small sample size is a significant limitation to this research. Self-selection bias and student reluctance to report dishonest behaviors are also limiting.

The dependent means test for question one showed no significance. However, the effect of classification on student perceptions of cheating from the pre- and post-survey was significant. There was no correlation evident for student perceptions of cheating and knowledge of institutional academic integrity policies. Similarly, there was no correlation between student perceptions of cheating and actual self-reported incidents of cheating. More research is needed with a larger sample size to determine if an academic integrity tutorial has an effect on student perceptions of cheating and can be an effective tool in an institution's academic integrity program.

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## Appendix A



**Institutional Review Board**  
University of Missouri-Columbia

190 Galena Hall; Dc074.00  
Columbia, MO 65212  
573-882-3181  
irb@missouri.edu

June 15, 2015

Principal Investigator: Robin E Grebing  
Department:

Your Exempt Application to project entitled The Effect of An Online Plagiarism Tutorial on Student Perceptions of Cheating was reviewed and approved by the MU Institutional Review Board according to terms and conditions described below:

IRB Project Number	2002539
IRB Review Number	204629
Approval Date of this Review	June 15, 2015
IRB Expiration Date	June 15, 2016
Level of Review	Exempt
Project Status	Active - Open to Enrollment
Exempt Categories	45 CFR 46.101b(2)
Risk Level	Minimal Risk

The principal investigator (PI) is responsible for all aspects and conduct of this study. The PI must comply with the following conditions of the approval:

1. No subjects may be involved in any study procedure prior to the IRB approval date or after the expiration date.
2. All unanticipated problems, adverse events, and deviations must be reported to the IRB within 5 days.
3. All changes must be IRB approved prior to implementation unless they are intended to reduce immediate risk.
4. All recruitment materials and methods must be approved by the IRB prior to being used.
5. The Annual Exempt Form must be submitted to the IRB for review and approval at least 30 days prior to the project expiration date. If the study is complete, the Completion/Withdrawal Form may be submitted in lieu of the Annual Exempt Form
6. Maintain all research records for a period of seven years from the project completion date.
7. Utilize all approved research documents located within the attached files section of eCompliance. These documents are highlighted green.

If you have any questions, please contact the IRB at 573-882-3181 or irb@missouri.edu.

Thank you,  
MU Institutional Review Board

## Appendix B

Email to Students

**Subject Line: Chance to Win an iPad Mini2**

September 12, 2015

**You are invited to participate in a research study the effect of online plagiarism tutorials on student perceptions of cheating.** Your participation is completely voluntary and anonymous. There are no risks to you associated with participation in this research.

The research involves three steps and it will take about one hour for you to complete all three steps. Answer all of the questions frankly and honestly.

Please follow the steps outlined below to participate.

- 1) complete the Academic Integrity Survey at <https://www.surveymonkey.com/r/LHGHLFD>,
- 2) complete the online academic integrity tutorial at <https://www.umuc.edu/students/academic-integrity/tutorial.cfm>, and
- 3) re-take the Academic Integrity Survey (a shorter version) at <https://www.surveymonkey.com/r/V872VG2>.

At the end of the second Academic Integrity Survey, you will have the option to enter your name into a drawing for a 32GB iPad Mini2.

The survey links will be active September 12 through September 28. **Please complete all 3 steps of the research before the end of the day on September 28.**

More information about the research can be found in the [Informed Consent Letter](#) . If you have any questions about the study, you can contact me at [rgrebing@gmail.com](mailto:rgrebing@gmail.com).

The Academic Integrity Survey is similar in design to studies conducted over the last 20 years at more than 200 schools, involving more than 250,000 students. Your participation will contribute to our understanding of how best to educate students about college academic honesty policies and help them to avoid policy violations.

Again, your responses are anonymous and cannot be connected back to you. There are no risks to you as a result of your participation in this research. Thank you for your participation.

Thank you.

Robin E. Grebing

## Appendix C

From: amonson@g.clemson.edu [amonson@g.clemson.edu] on behalf of Aaron Monson [amonson@clemson.edu]  
Sent: Monday, May 11, 2015 8:07 AM  
To: Grebing, Robin E.  
Subject: Re: Request to Use Academic Integrity Survey

Hello Robin,

Sorry for the slow response. I did receive your voicemail - I took a long weekend because I had family in town.

Attached you will find the Academic Integrity Assessment Guide and the sample faculty/student surveys that accompany them. As mentioned, please only publish portions of the Guide and surveys in your dissertation - we do allow such use for research/writing, but prefer to keep the surveys themselves confidential to protect their integrity. There aren't really any other stipulations to go with it.

Please let me know how else we can help with your research, or if we can answer any questions.

Cheers,

--

Aaron Monson  
Membership Director  
International Center for Academic Integrity (ICAI)  
Robert J. Rutland Institute for Ethics  
Clemson University  
236 Hardin Hall  
Clemson, SC 29634-5138  
Ph: 864.656.1293  
Fx: 864.656.2858  
amonson@clemson.edu<mailto:amonson@clemson.edu>  
[www.academicintegrity.org](http://www.academicintegrity.org)<<http://www.academicintegrity.org>>

[[http://www.academicintegrity.org/icai/images/internet\\_quotes.jpg](http://www.academicintegrity.org/icai/images/internet_quotes.jpg)]

## Vita

Robin Grebing is the Director of Online Education at St. Louis Community College. In addition to a B.S.Ed. from University of Missouri-Columbia, Ms. Grebing holds an M.B.A. from William Woods University. She completed her doctorate in educational leadership and policy analysis at the University of Missouri-Columbia in December 2015. She began her career teaching English and Social Studies for grades 7-12, and has taught undergraduate and graduate marketing courses in the traditional, online and blended formats. Additionally, she authored curriculum for 8<sup>th</sup> grade American History for the University of Missouri's virtual high school. In 1999, Ms. Grebing was an instructor with Class Afloat where she taught several subjects, prepared students for land programs, and assisted with an educational website that brought the travels of the S.V. Concordia into classrooms around the world. She worked as a marketing director for six years in government and non-profit agencies and has several years of experience in institutional research, effectiveness and planning for postsecondary institutions. During her tenure in online education, Ms. Grebing has developed a student service delivery model for online student services and has presented this model at regional and national conferences. Ms. Grebing's research interests are academic integrity in the online environment, student services for distance students, and best practices for online instruction.