

MITIGATING PLAGIARISM IN LARGE
INTRODUCTORY COURSES IN
HIGHER EDUCATION

by

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ABSTRACT

This research focuses on key factors contributing to the mitigation of plagiarism in large higher education classes: a) the role of cultural values in plagiarism, b) assignment design to prevent plagiarism, and c) preventing plagiarism with detection system. The first study focuses on the role of student cultural values in higher education in plagiarism from the students' perspective. Three recommendations are provided to help institutions begin facilitating a culture of learning, rather than a culture of cheating. First, a case can be made that leaders in higher education need to reduce the emphasis on competition and grades. Second, administrators need to encourage faculty to embrace teaching along with other academic pursuits. Last, a social norms campaign should be devised that directly addresses student misperceptions of the incidences of academic misconduct. The second study focuses on the role of faculty course design as a plagiarism deterrent. Accordingly, the researcher generated empirical data on the frequency, type and extent of plagiarism in three course design types using the plagiarism detection system Turnitin. The author concludes that as the trends toward increased computer technologies usage and expanding commercialization of higher education continue, faculty have the most important role in mitigating plagiarism in higher education. The third study explores the use of a plagiarism detection system to deter the escalating prevalence of digital plagiarism. Findings suggest that when students are aware of their work being run through a detection system, they are less inclined to plagiarize. This researcher concludes that regardless of such class demographics as class standing, gender, and college major, recognition by the instructor of

the nature and extent of the plagiarism problem and acceptance of responsibility for deterring it are pivotal in reducing it. The investigator concludes by making the case for higher education to use a multifaceted approach to mitigate plagiarism. This includes understanding the cultural context of the behavior, the role of the faculty to mitigate the practice through course design and employment of plagiarism detection software, and an active and supportive program by administrative officials to see that this is done.

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CONTENTS

ABSTRACT.....	ii
ACKNOWLEDGMENTS	iv
LIST OF TABLES	x
CHAPTER I: LARGE CLASSES IN HIGHER EDUCATION: THE PLAGARISM CHALLENGE.....	1
Literature Review.....	2
Trends	3
Institutional Factors	3
Student and Peer Factors.....	4
Faculty Factors.....	6
Research Overview	8
References.....	12
CHAPTER II: THE ROLE OF CULTURAL VALUES IN PLAGARISM IN HIGHER EDUCATION	21
Introduction	21
Literature Review.....	22
Prevalence.....	22
Correlates	23
Academic Dishonesty in General.....	23
Situational Factors Play a Role in Cheating Behaviors	25
Plagiarism Specifically	25
Role of the Internet	26

Role of Cultural Context.....	27
The Present Study	28
Methodology.....	29
Respondents	29
Procedure	30
Instrument	31
Data Collection	32
Analyses	32
Results.....	33
Research Question 1	33
Research Question 2	33
Research Question 3	33
Research Question 4	35
Research Question 5	36
Research Question 6	43
Contributing Values	43
Deterring Values	48
Individualism	48
Discussion.....	52
Justifications	54
Cultural Values	57
Conclusion	59
References.....	61

CHAPTER III: REDUCING PLAGARISM THROUGH ASSIGNMENT DESIGN IN LARGE INTRODUCTORY CLASSES	68
Introduction.....	68
Literature Review.....	69
Nature and Extent of Academic Misconduct	69
Higher Education’s Response to Academic Misconduct.....	70
Honor Emphasis (1900-1945).....	71
Enforcement Emphasis (1945-2000)	72
Effects of Commercialization	74
Effects of Computer Technology.....	75
Toward a Holistic Approach (2000-present)	76
The Case for Course Design	78
Plagiarism Detection.....	79
The Present Study	80
Methodology	81
Sample.....	81
Procedure	81
Measure.....	82
Analyses	83
Limitations	83
Findings.....	84
Discussion	89
References.....	91
CHAPTER IV: TURNITIN SYSTEMS: A DETERRENT	101

Introduction	101
Literature Review.....	102
Contributing Factors	103
Plagiarism Detection Technology.....	105
The Case for Turnitin.....	109
The Present Study	109
Methodology.....	110
Sample.....	110
Procedure	111
Measure.....	111
Analyses	111
Findings.....	111
Discussion.....	132
References.....	135
CHAPTER V: SYNTHESIS AND RECOMMENDATIONS	144
Introduction	144
Major Themes and Findings	144
Factors Influencing Plagiarism in Higher Education	144
Student Environment to Improve Behavior	147
Educators Have Responsibility to Foster Academic Integrity	148
Limitations of Research	150
Implications for Mitigating Plagiarism in Higher Education	151
Recommendations for Future Research.....	153

References.....155

LIST OF TABLES

2.1	Gender, Class Standing, Course Grade, College of Major	30
2.2	Students' Perceptions Regarding Plagiarism	35
2.3	Rationales Students Have Heard for Justifying Plagiarism	38
2.4	Most Frequent Justifications by Gender, Class Standing, Class Grade, and College Major.....	40
2.5	American Cultural Values That Contribute To or Deter Plagiarism	45
2.6	Most Frequent Contributing Values by Gender, Class Standing, Class Grade, and College Major	47
2.7	Most Frequent Deterring Values by Gender, Class Standing, Class Grade, and College Major.....	50
3.1	Cross-Tabulations for Gender by Assignment Type (Year).....	81
3.2	Cross-Tabulations for Percentage of Overall Overlap by Assignment Type	85
3.3	Cross-Tabulations for Percentage of Publication Overlap by Assignment Type	86
3.4	Cross-Tabulations for Percentage of Publication Overlap by Assignment Type: 0-24% vs. 25-100%	86
3.5	Cross-Tabulations for Percentage of Internet Overlap by Assignment Type	87
3.6	Cross-Tabulations for Percentage of Internet Overlap by Assignment Type: 0-24% vs. 25-100%	88
3.7	Cross-Tabulations for Percentage of Student Paper Overlap by Assignment Type	89
3.8	Cross-Tabulations for Percentage of Student Paper Overlap by Assignment Type: 0-24% vs. 25-100%	89
4.1	Descriptive Statistics for Prevalence of Plagiarism when Students Were Unaware Plagiarism Detection System	113
4.2	Descriptive Statistics for Prevalence of Plagiarism when Students Were Aware Plagiarism Detection System	114

4.3	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Gender: Total Sample.....	115
4.4	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Class: Total Sample.....	117
4.5	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of College Major: Total Sample	118
4.6	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Gender: Fall 2010 Subsample	120
4.7	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Class: Fall 2010 Subsample	122
4.8	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of College Major: Fall 2010 Subsample.....	124
4.9	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Gender: Spring 2011 Subsample.....	126
4.10	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Class: Spring 2011 Subsample.....	128
4.11	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of College Major: Spring 2011 Subsample	129
4.12	Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Awareness of Plagiarism Detection System.....	132

CHAPTER I:
LARGE CLASSES IN HIGHER EDUCATION:
THE PLAGIARISM CHALLENGE

This research combines concepts and methods from sociology and educational and instructional leadership to partially fulfill requirements for an interdisciplinary Ph.D. in sociology and instructional leadership. The first chapter briefly outlines the main purpose and organization of the dissertation. Chapters II through IV consist of three independent, but related research articles, focusing on key factors contributing to the mitigation of plagiarism in large higher education classes: a) the role of cultural values in plagiarism; b) assignment design to prevent plagiarism; and c) preventing plagiarism with detection system. Plagiarism—the copying of others’ work or ideas without attribution, treating the material as if it were one’s own—can occur in any number of areas, including the copying of art, music, lab work, computer programming, and technology. However, the focus of this research segment is on *textual* plagiarism. Specifically, this is the “...reproduction of text from other academic sources, such as journal articles, books, or lecture notes without adequate acknowledgment of the source, copying some or all of other students’ assignments and even having assignments ‘ghost-written’ by other authors” (Selwyn, 2008, p. 465).

The initial analysis, Chapter II, centers on cultural factors that some authorities maintain are the most important to understanding and mitigating plagiarism. The researchers hypothesize and find some empirical support that a student on-campus culture may actually reinforce and perpetuate the practice. The third and fourth chapters of the dissertation move from theory to

application by exploring ways to reduce plagiarism. The second analysis, Chapter III, focuses on a key element of course design as it may affect plagiarism in large introductory courses— assignment structure (i.e., how assignments can be shaped in ways that discourage students’ copying others work without attribution). Chapter IV shifts to the issues of the use, evaluation, and role of a plagiarism detection software, specifically Turnitin, as a deterrent method. The final chapter summarizes in the larger context of prevention and its significance to higher education policy.

Literature Overview

By most accounts, instances of plagiarism in higher education are high. A study conducted in 1964, of a sample of 5,000 students from 99 colleges and universities in the United States revealed that three-fourths reported being engaged in some form of academic dishonesty (Bowers, 1964). Reportedly, this behavior has increased in the last few decades (Bernardi, Baca, Landers, & Witek, 2008; MacDonald & Carroll, 2006; McCabe, 2001). Speculation is that with the increasing reliance on internet sources, there have been corresponding increases in “cutting and pasting” behaviors without proper referencing, as well as use of online term writing services (Briggs, 2008; Dee & Jacob, 2010; Ma, 2008; Walker, 2010). Researchers have noted that in the past plagiarism required a lot of work: going to the library, searching, reading and copying, however, a paper can now be put together by using online sources within a short period of time (Batane, 2010; Scanlon, 2003; Tackett, Claypool, Wolf, & Antenucci, 2010).

With the development of computer and internet technology, with its instant access to information, the ease of cut-and-paste technology and potential anonymity of behavior, some have argued that online settings create an easy climate for this kind of academic misconduct (Duggan, 2006; Evans, 2006; Maurer, Kappa, & Zaka, 2006; Thompson, 2006). On the other

hand, others have speculated that while traditional classroom settings may be characterized by greater responsibility and control mechanisms, other factors can make these offerings ripe for plagiarism as well (Anderman, Freeman, & Mueller, 2007; McCabe, 2005; Vowell & Chen, 2004). These factors include ready access to fellow classmates and their work, social networks that may have assignment and test files, and even the presence of an institutional culture of cheating.

Trends

Historically, studies of various types of academic misconduct in the United States date back to the 1940s. Drake (1941) found that almost one-fourth of students surveyed admitted to cheating in one way or another. Increases in cheating were reported by Bowers (1964) and in a replication of this study thirty years later (McCabe, Trevino & Butterfield, 2001). Incidences of plagiarism particularly appear to be numerous and increasing significantly. In one study, almost 25% of 698 students self reported that they went online and cut and pasted text without proper referencing (Scanlon & Neumann, 2002). Other studies point to significant issues in this regard. Baker, Thornton, and Adams (2008) found that although 90% of the students they surveyed admitted to cheating, they did not perceive digital plagiarizing as academic dishonesty. Martin, Rao, and Sloan (2009) found that the instances of plagiarism were actually higher than students were willing to admit in self-report surveys. Other studies indicate that digital or internet plagiarism has surpassed conventional forms (Butakov & Scherbinin, 2009; Stephens, Young & Calabrese, 2007; Tackett et al., 2010).

Institutional Factors

Institutional factors play a role in these trends. Some have argued that higher education has been slow to confront academic dishonesty in general and plagiarism in particular (Park,

2003 & 2004; Scanlon, 2003; Sutherland-Smith, 2005). Others have noted a lack of robust response to plagiarism in higher education and that the issue is not new. A 40-year-old study asked administrative officials and student leaders to cite penalties for various cheating offenses among all of the infractions that were listed and for which students were usually suspended or expelled. The infraction listed as *last* was “plagiarism of a term paper” (Bowers, 1964). Bowers noted that the practice ranked far behind “violating rules about having guests of the opposite sex in dorm rooms” and “stealing books from the library.” Nuss (1984) attributed student plagiarism to the failure of institutions in higher education to emphasize the value of independent scholarship to the student population. White (1993) noted that “plagiarism fits nicely into the gamesmanship of learning. We give too much weight to the passive adoption of others’ ideas, to the mindless repetition of slogans as if they were thoughts.” Martin (1994) asserted that emphasis in higher education has shifted from such “serious and pervasive problems” to issues less serious. This assertion is at least indirectly supported by Mertz (2004) and Ma, Wan, and Lu (2008) who maintain that plagiarism does not receive sufficient punishment as a deterrent, though some argue for a holistic approach in which threat of punishment is balanced against an emphasis on sound scholarly practices (Compton & Pfau, 2008; Devlin, 2006; Long, Errami, George, Sun, & Garner, 2009; MacDonald & Carroll, 2006).

Student and Peer Culture Factors

Factors associated with higher instances of plagiarism include the peer culture (McCabe, 2005). Specifically, higher instances of academic misconduct are correlated with social membership, perceptions of and pressures from the peer culture, and pressure to keep up with peers academically (Anderman et al., 2007; Blum, 2009). Sorority and fraternity membership has been the focus of a number of investigations. For example, McCabe and Trevino (1997) noted

that a wide range of group memberships can have varying impact. But fraternity/sorority life provides a particularly favorable context—“norms, values, and skills associated with cheating” (p. 383). A meta-analysis by Whitley (1998) confirmed this conclusion, but the effects, while significant, were small. A more recent study found a positive association between these variables as well, but the effects of such membership diminished in time through the college experience (Pino & Smith, 2003).

Anderman, Freeman, and Mueller (2007) summarized literature on perceptions of the peer culture and cheating in the service of peer relationships. Students may have an exaggerated perception of a “culture of cheating” (Ameen, Guffey, & McMillan, 1996; Blum, 2009; Gibson et al., 2006; McCabe, 1999). On a related note, students tend to overestimate the instance of academic dishonesty at their institutions (Anderman et al., 2007; Jordan, 2001; Ma et al., 2008; Ng, Davies, Bates, & Avellone, 2003). With specific regard to digital plagiarism, studies confirm that college students actually thought that the instance of plagiarism was higher than their own self-reports suggested (Compton & Pfau, 2008; Martin, Rao, & Sloan, 2009; Scanlon & Neumann, 2002). The significance of these findings is that over estimation can result in acceptability and engagement of these students in this type of behavior.

A number of studies point to students cheating to maintain or enhance their status within friendship networks. These range from “helping out a friend” in anticipation of a future favor (Ng et al., 2003; Yardley, Rodriguez, & Bates, 2009) to the interest of broader social goals for more positive relationships with peers (Anderman, 1999; Blum, 2009; Wentzel, 1994, Yardley et al., 2009). Peer influence also occurs as students try to maintain their status with peers academically—they do not want to appear incompetent (Gibson et al. 2006; Ng et al., 2003).

Faculty Factors

Faculty at institutions of higher education obviously have a role preventing, allowing, or even encouraging academic misconduct. Particularly important is the instructor's relationship with the students and the resulting classroom environment. Students report being less likely to cheat when they perceive instructors to be friendly, approachable, and respectful in their interactions (Garavalia, Olson, Russell, & Christensen, 2007). Broader evidence suggests certain teacher characteristics and classroom philosophy can actually contribute to a climate of student misconduct (Bernardi et al., 2008; McCabe, 2005; Pulvers & Diekhoff, 1999). In essence, those instructors who do not provide clear and well organized learning environments, individualized attention and who are perceived to be unfair in their expectations and grading may unwittingly produce an environment of student dishonesty.

Recognition by the instructor of the nature and extent of the plagiarism problem and accepting responsibility for deterring it are important in reducing it. Thomas (2004) noted "...faculty perceptiveness is the first line of defense against plagiarism" (p. 428). As a case in point, Parameswaran and Devi (2006) reported that in undergraduate engineering labs, lab reports are routinely copied, yet teaching assistants and lab technicians did not assume responsibility for mitigating the misconduct. Crown and Spiller (1997) point to the implications of not addressing the cheating issue, noting that

When cheating is not addressed, students may perceive the environment as unfairly weighted towards those who do not play by the rules, and respond by either refusing to participate or joining the rule breakers. (p. 127)

Social control is also in the hands of the faculty (Garavalia et al., 2007; Jocoy & DiBiase, 2006; Lovett-Hooper, Komarraju, Weston, & Dollinger, 2007; Park, 2003; Tackett et al., 2010; Thomas, 2004; Willen, 2004). An instructor's reputation in regard to how they dealt with

cheating incidences is another factor. Keith-Spiegel, Tabachnick, Whitley, and Washburn (1998) found that those who failed to punish academic misconduct may have actually reinforced cheating as the norm. Disincentives for academic dishonesty, likelihood of being caught and perceived severity of penalties were all found to be factors in mitigating plagiarism (Dee & Jacob, 2010; McCabe & Trevino, 1993; Smyth & Davis, 2003; Tackett, 2010). When students perceived their instructors to be vigilant, they were less likely to cheat (Bernardi & Adamaitis, 2006; Genereux & McLeod, 1995).

Finally, course design is another focus in preventing plagiarism (e.g., Austin & Brown, 1999; Compton & Pfau, 2008; Gannon-Leary, Trayhurn, & Home, 2009; Gibson et al., 2006; McLafferty & Foust, 2004; Parameswaran & Devi, 2006; Price, 2002; Samuels & Bast, 2006). Specific strategies include designing assignments for collaborative work (Hart & Friesner, 2004; Kasprzak & Nixon, 2004; McCord, 2008; Price, 2002), turning in the actual sources used in the assignments (Austin & Brown, 1999; Hart & Friesner, 2004; McCord, 2008; Sterngold, 2004; Samuels & Bast, 2006), having students submit work through plagiarism detection software (Batane, 2010; Baker et al., 2008; Barrett & Malcolm, 2006; Berry, Thornton, & Baker, 2006; Briggs, 2008; Chaudhuri, 2008; Gannon-Leary et al., 2009; Heikes & Kucsera, 2008; Ledwith & Risquez, 2008; Milliron & Sandoe, 2008; Walker, 2010), having students turn in progressive work products (Gibson et al., 2006; Kasprzak & Nixon, 2004; McCord, 2008; Samuels & Bast, 2006; Sterngold, 2004) developing assignments that require evaluation and reflection of material not collation of materials (Batane, 2010; Howard & Davies, 2009; Olt, 2002; Samuels & Bast, 2006; Sterngold, 2004) and varying the nature and frequency of assignments (Batane, 2010; Bernardi et al., 2008; Gibson et al., 2006; Hart & Freisner, 2004; McCord, 2008; Olt, 2002; Sterngold, 2004; Samuels & Bast, 2006).

Research Overview

The dissertation comprises three key components for addressing plagiarism in higher education. To address student factors, the researcher explored student perceptions of a cheating culture. To address faculty factors in plagiarism deterrence, the researcher explored the use of different assignment strategies. Finally, the researcher explored whether institutions of higher education can mitigate plagiarism through the use of plagiarism detection software.

Several investigations include issues within a student ‘culture’ of cheating as an important variable in both the understanding and mitigation of plagiarism (Blum, 2009). Park (2003), largely looking at the North American experience, developed a typology of reasons as to why students plagiarize. These included student personal values, peer pressure, and negative students’ attitudes towards teachers and course requirements. Expanding on the work of Noah and Eckstein (2001), James, McInnis, and Devlin (2002) and Devlin (2006) listed among six reasons for student plagiarism at least two cultural factors: pressures for individual success and social norms governing plagiarism. Ashworth, Freewood, and Macdonald (2003) indicated that factors such as alienation from the university, impact of large classes, and greater emphasis on distance learning are often perceived by students themselves as facilitating or excusing plagiarism. Plagiarism analysts speculate that most forms of plagiarism offenses are “increasing partly because of online education and the Internet” (Belter & du Pre, 2009). Social and contextual factors are embedded in these learning environments and have been found to contribute greatly to academic misconduct beyond moral or individual dimensions (Ogilvie & Stewart, 2010). For example, an evaluation of student attitudes towards cheating or plagiarizing revealed that more than 70% of college students do not consider internet plagiarism as a serious offense as traditional plagiarism (Baker, Berry, & Thornton, 2008; Ma et al., 2008). Recently,

Batane (2010) reported on a pilot study where Turnitin was used to detect plagiarism among student papers, the extent of plagiarism, and to determine Turnitin's effectiveness. The pilot indicated that plagiarism was slightly higher than expected, the use of Turnitin did not eliminate plagiarism and "...in order to effectively fight plagiarism...it is important to readdress the value of education to students and work to change their attitudes" (p. 8). Thus, the researcher conducted a study to determine students' perceptions, attitudes, and knowledge about internet plagiarism specifically in large courses.

Several authors addressed the role faculty can play to prevent plagiarism. These are mostly directed at students and maintain the assumption that the best deterrent is an understanding of what constitutes plagiarism (Belter & du Pre, 2009; Blum, 2009; Vogelsang, 1997). However, other authorities point to evidence suggesting that the behavior is a calculated act (Williams & Hosek, 2003). Ninety percent of students surveyed say it is wrong to cheat yet cheating rates of the same population range from 75% to 87% (Davis, Grover, Becker & McGregor, 1992). In this same vein, reliable predictors of cheating were perceptions of low probability of detection and not being punished, large classes, lack of personal relationship with professors and professors not appearing to monitor (Bernardi et al., 2008; Dee & Jacob, 2010; Hutton, 2006; Pullen, Ortloff, Casey, & Payne, 2000). A number of studies point to the potential significance of course design as a means of mitigating plagiarism (Austin & Brown, 1999; Compton & Pfau, 2008; Gannon-Leary et al., 2009; Gibson et al., 2006; McLafferty & Foust, 2004; Parameswaran & Devi, 2006; Price, 2002; Samuels & Bast, 2006). Students are less likely to commit academic dishonesty if they perceive their instructors to be concerned about maintaining an environment of integrity (Hutton, 2006). Thus, the research will move from

theory to application by exploring ways to reduce plagiarism through course design in large courses.

Some suggest that better monitoring could possibly reduce the propensity to cheat; however, “most professors do not want the aggravation” (Ameen, Guffey, & McMillian, 1996, p. 202). Keith-Spiegel and associates (1998) found that 91% of the students sampled believed that ignoring academic misconduct was unethical. This suggests that institutions themselves have a role in plagiarism deterrence in terms of providing both the incentives and the means to monitor. Research on the effectiveness of fear of punishment has supported a slight negative effect on the inclination to engage in academic dishonesty (Haines, Diekoff, LaBeff, & Clark, 1986; Smyth & Davis, 2003). Braumoeller and Gaines (2001) found that even the most overt warnings of punishment failed to deter plagiarism in their sample. On the other hand, others have found that informing students that their work would be run through plagiarism detection software was a highly effective deterrent (Atkinson & Yeoh, 2008; Badge & Scott, 2009; Maslen, 2003; Tackett et al., 2010). “Any faculty members who fail to utilize plagiarism detection engines . . . are inviting above average levels of cheating” (Tackett et al., 2010, p. 79). This article focuses on the effectiveness of using a popular plagiarism detection software, *Turnitin*, as a deterrent to plagiarism.

The issue of plagiarism in higher education cuts to the heart of the academic enterprise as research indicates that it is a widespread and growing problem in the internet age. Most authors have defined plagiarism as an issue of students’ personal moral breakdown or ignorance that can be corrected by anti-plagiarism education. A limitation to this approach is that an individual focus overlooks the forces determining how plagiarism is viewed and handled beyond the personal level. Further, processes and procedures for preventing plagiarism in higher education

are evolving, particularly in the area of technology. An important result of this research would be to point to the need for a sociological perspective of plagiarism on college campuses, especially when developing or evaluating the issue in large courses. No policy can effectively address plagiarism without consideration of how plagiarism is constructed by all who are involved, including faculty, course developers, and administrators, and in the context of the social world in which it occurs. Of underlying importance is the development of policies that address and incorporate the discourse of all stakeholders, as well as an awareness of the socio-cultural forces that shape how plagiarism is constructed. Accordingly, the three studies to follow focus on the role of student culture, faculty involvement, and institutional support to mitigate this type of academic misconduct.

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CHAPTER II:
THE ROLE OF CULTURAL VALUES
IN PLAGIARISM IN HIGHER EDUCATION

Introduction

Plagiarism—the copying of others’ work or ideas without attribution, treating the material as if it were one’s own—can occur in any number of areas, including the copying of art, music, lab work, computer programming, and technology. However, the focus of this research segment is on *textual* plagiarism. Specifically, this is the “. . . reproduction of text from other academic sources, such as journal articles, books, or lecture notes without adequate acknowledgment of the source, copying some or all of other students’ assignments and even having assignments ‘ghost-written’ by other authors” (Selwyn, 2008, p. 465). In this article, the author reports research results on the role of cultural values in university students’ plagiarism perceptions and behavior. Investigators point to evidence that plagiarism and other academic misconduct are in part supported by a culture that both encourages and facilitates the practice (Callahan, 2004). Accordingly, a class of 538 introductory sociology students were administered a questionnaire regarding their understanding of what constitutes plagiarism, how widespread it is, whether or not they consider the practice a part of the collegiate culture, how it might differ in its ethical implications from other forms of plagiarism, and the possible role of student cultural values in its practice and justification.

Literature Review

Prevalence

Academic dishonesty covers a wide range of behaviors, including copying someone's work, using crib or cheat sheets, helping someone else cheat on an exam, falsifying a bibliography, and turning in work done by someone else, and of course plagiarism. Such conduct has a long history (McCabe, Trevino, & Butterfield, 2001). Studies of various types of academic misconduct in the United States date back at least as far as the 1940s. Drake (1941) found that almost one-fourth of students surveyed admitted to cheating. This included copying others' lab reports, sharing test answers, and using previous students' work. A 1964 study (Bowers) employed a sample of 5,000 students from 99 colleges and universities in the United States and revealed that three-fourths reported being engaged in some form of academic dishonesty. McCabe et al. (2001) replicated the study years later and concluded "...research demonstrates that cheating is prevalent and that some forms of cheating have increased dramatically in the last 30 years" (p. 219).

Hammond (2002) surveyed published estimates of cheating, including plagiarism, in Great Britain from 1941 to 2001. The 1941 survey revealed 20-25% engaged in cheating; by the 1990s, the percentages were 60-65. Other studies pointed to increases in academic misconduct as well (e.g., Bjorklund & Wenestam, 1999) and plagiarism in particular (e.g., Carroll & Appleton, 2001; Franklyn-Stokes & Newstead, 1995; Furedi, 2003; Maslen, 2003; McCabe, 2001). Park (2003) concluded that, "there is mounting evidence that student cheating in general and plagiarism in particular, are becoming more common and more widespread . . . creating a 'cheating epidemic'" (p. 471), citing evidence from a variety of countries, including the United

States (White, 1993), the United Kingdom (Ashworth, Bannister, & Thorne, 1997), South Africa (Weeks, 2001), and Finland (Seppanen, 2002).

Plagiarism is known to comprise a large segment of academic misconduct. A recent study of higher education alumni's retrospections on cheating (Yardley, Rodriguez, Bates, & Nelson, 2009) indicated that of 19 cheating behaviors investigated, the most common forms were listed as: "(a) allowing others to copy, (b) copying from another's assignment, (c) reusing papers, and (d) plagiarism" (p. 6). A study by Hawley (1984) employing a one-campus survey of 425 undergraduate students found that: 12% reported asking someone to write a paper for them; 15.6% had actually turned in a paper written by someone else; and 5.6% reported using a research service. Arguably, all these behaviors fall under the general category of plagiarism. Scanlon and Neumann (2002) reviewed the plagiarism incidence literature and found a number of studies pointing to high frequency. Quantitative studies indicating the prevalence of plagiarism are not confined to the U.S. (e.g., Gibson et al., 2006) in reference to students in the Bahamas; Maslen (2003) in Australia; Bjorklund and Wenestam (1999) in Scandinavia; and Hammond (2002) in the U.K. However, the prevalence data from these studies are often drawn from students, and to a lesser extent, faculty and administrator surveys that include a variety of other forms of academic misconduct.

Correlates

Academic dishonesty in general. Numerous studies explore the correlates of academic misconduct. Miller et al. (2007) in Anderman and Murdock (2007) noted that most of this research relied on the self-reports of students. Evidence suggests that males report more cheating than females (Calabrese & Cochran, 1990; Davis, Grover, Becker, McGregor, 1992; Michaels & Miethe, 1989; Newstead, Franklyn-Stokes, & Armstead, 1996). Exceptions include

studies by Haines, Diekhoff, LaBeff, and Clark (1986); however, gender—when it is used as a control variable—is not a significant predictor of the behavior (Genereux & McLeod, 1995; McCabe & Trevino, 1997). With regard to age, the relationship with cheating appears to be curvilinear (Murdock, Miller, & Goetzinger, 2007). Cheating increases as students move through the lower levels of higher education and then begins to decrease as they move on to graduate schools and other professional programs (e.g., Anderman & Midgley, 2004; Franklyn-Stokes & Newstead, 1995; Haines, et al., 1986; Jensen, Arnett, Feldman, & Cauffman, 2002). The reasons for this relationship seem to be primarily contextual, that is, where students are in terms of their maturity weighed against the difficulty of competition for grades and a number of other situational factors. Personality characteristics also play a role: those who cheat early also tend to cheat late. If they report a record of cheating early in their education, there is a tendency to continue the practice (Murdock et al., 2007). Moreover, with regard to cheating generally, research suggests that the behavior is a calculated act, not usually a compulsive action (Williams & Hosek, 2003). In this same vein, reliable predictors of cheating were personalities high in hostility (Buckley, Wiese, & Harvey, 1998) and low levels of self-efficacy (e.g., Finn & Frone, 2004; Murdock, Hale, & Weber, 2001). Other research indicates the more hours worked outside of school, the *less* the cheating, and that married students cheat less than the unmarried (Diekhoff, LaBeff, Clark, Williams, Francis, & Haines, 1996).

Cheating prevalence differs across cultures. England (Newstead, Franklyn-Stokes, & Armstead, 1996), Germany, Costa Rica, the United States (Evans, Craig, & Mietzel, 1993), and Australia (Davis et al., 1992) reveal varying rates that correlate with the types of education systems these countries embrace, specifically the extent of emphasis on learning versus grades. For instance, Australian students place higher value on learning than do American students and,

therefore, show lower prevalence of cheating. In the U.S., Calabrese and Cochran (1990) reported that Caucasian students reveal higher rates than Asians and Hispanics and high socioeconomic status students in private schools cheat more than their public school counterparts.

Situational factors play a role in cheating behaviors. According to Pullen, Ortloff, Casey, and Payne (2000), situational factors include large classes, lack of a personal relationship with professors, job competition, and pressure for higher grade point averages to get into graduate programs. Finally, students tend to cheat less in religious studies courses than other courses (Sutton & Huba, 1995), but most research indicates no relationship per se between religiosity and cheating (e.g., Michaels & Miethe, 1989; Smith, Ryan, & Diggins, 1972).

Plagiarism specifically. With regard to plagiarism, findings suggest that some students plagiarize because they do not really understand what it is or how to write academically (Ashworth et al., 1997; Devlin & Gray, 2007; DeVoss & Rosati, 2002; Iyer & Eastman, 2006; Park, 2003). Others may recognize their actions as inappropriate but feel compelled because of time management problems (Bennett, 2005; Bernardi, Baca, Landers, & Witek, 2008; Iyer & Eastman, 2006; Park, 2003; Yardley et al., 2009). They may see plagiarism as an efficient way to complete assignments (Devlin & Gray, 2007; DeVoss & Rosati, 2002; Stephens, Young, & Calabrese, 2007). Other students may plagiarize not because they feel pressured to complete an assignment but for more purely antisocial reasons: they may have little respect for authority (Bernardi et al., 2008; Callahan, 2004; Devlin & Gray, 2007) and negative attitudes toward their teachers or classes (Bennett, 2005; Bernardi et al., 2008; Callahan, 2004; Hutton, 2006; Park, 2003). One reason plagiarism can become rampant on college campuses is that it is rarely detected or punished. With great temptation and little fear of getting caught, students may opt for

the 'easy way out' and then are reinforced for this behavior with no consequences (Bennett, 2005; Park, 2004; Pickard, 2005; Selwyn, 2008; Sileo & Sileo, 2008; Stephens et al., 2007; Walker, 2010).

The problem with correlation variables, of course, is that causal attribution can be tenuous. Correlation evidence does not enable identification of processes underlying the decisions to cheat, nor does it lead to constructive recommendations on ways to reduce the amount of cheating that occurs in our schools and universities (Miller, Murdock, Anderman & Poindexter, 2007).

Role of the Internet

Adding to what appears to be a cheating momentum is the role of the Internet, where information is readily available and easy to copy-and-paste as one's own work. Paulhus, Nathanson, and Williams (2005) noted

...Academic cheating is now easier than ever. Instead of typing up another student's term paper, students can now simply copy their file. Instead of typing up text from an Internet source, students can simply copy the information electronically. For a fee, one can access prepared papers from any one of 251 Internet 'paper mills' (at last count). Papers on any topic, at any level of sophistication can be downloaded in a matter of seconds. (p. 8)

An editor of *Ethics and Behavior's* special issue on academic dishonesty points to the "Internet revolution" as facilitating "...new types of academic dishonesty" (Wowra, 2007, p. 211).

Stephens et al. (2007) reported on an online survey of over 1,300 undergraduate students in which over 45% admitted to using both conventional and Internet-driven methods to cheat.

Another observer noted, "Given students' propensity to cheat for a variety of reasons...the Internet merely adds one more vehicle of potential academic dishonesty for a tech-savvy generation" (Milliron & Sandoe, 2008, p. 2). Thus, it appears that copying original work from the internet is now surpassing conventional forms of copying.

This is in spite of the fact that students tend to underreport the practice, since they do not always know what constitutes plagiarism. Baker, Berry, and Thornton (2008) found that although 90% of the students they surveyed admitted to cheating, they did not perceive digital plagiarizing, copying from digital sources (i.e., internet), as academic dishonesty. Scanlon and Neumann (2002) found that almost 25% of 698 students self reported that they went online and cut and pasted text without proper referencing. On a related issue, Martin, Rao, and Sloan (2009) found when comparing students' self reports and their plagiarism detection software score that the incidences of plagiarism were actually higher than students were willing to admit. Thus, the body of evidence suggests that plagiarism is a significant subset of academic misconduct, and the ease of digital cut-and-paste behaviors contribute to this ongoing problem.

Role of Cultural Context

Both broad and sub-level cultural forces are associated with and, by inference, affect cheating behavior. Callahan (2004) has argued that a highly competitive environment in the United States against a backdrop of economic inequality has created a society without a moral compass. He goes on to look at the more specific dimensions of this phenomenon including: the “normalization” of the behavior (everybody does it); valuing the economic bottom-line (worship of profit); instrumental attitudes (the ends justify the means); character issues (bad values); regulatory failures that cause temptation (you are not really going to get caught); cheating by the masses (from stealing music over the Internet to inflating insurance claims); learning early how to work the system to get ahead; and lack of accountability and punishment for cheating in education and professional settings. These factors in a climate of inequality create “the cheating culture.”

Cheating thrives where unfairness reigns, along with economic anxiety. It thrives where government is the weak captive of wealthy interests and lacks the will to do justice

impartially. It thrives where money and success are (sic.) king, and winners are fawned over whatever their daily abuses of power. (Callahan, 2004, p. 263)

Other researchers conceptualize what Callahan terms cultural as contextual factors. These include perception of peers' behavior, student perceptions and values regarding academic dishonesty and its penalties (e.g., Anderman, 2007; Park, 2003) and the role of personal values (Devlin & Gray, 2007; Iyer & Eastman, 2006; Milliron & Sandoe, 2008; Scanlon & Neumann, 2002). Or they refer to elements of culture, as external motivators (Davy, Kincaid, Smith, & Trawick, 2007; Yardley et al., 2009), peer norms (Stephens et al., 2007), or social networks (Hutton, 2006).

Sociologically, culture can be used as "... a general term for the symbolic and learned aspects of human society" (Marshall, 1994, p. 104). To the point of this research, culture constitutes the social determinants of human behavior. The concept at its broadest level describes and predicts attitudes, beliefs, values, and behavior of people in a society or other social unit.

The Present Study

The focus of this research was on the applications of these general cultural factors to a specific type of conduct in a specific setting: plagiarism on a university campus. A primary goal was to gain understanding of students' perspectives regarding plagiarism. The objective was to assist instructors in higher education in their efforts to communicate norms about the practice of plagiarism and to reduce its incidences. Accordingly, this researcher posed the following research questions:

1. Do college students know the meaning of plagiarism and internet plagiarism;
2. Do students perceive plagiarism to be a widespread problem on college campuses;

3. Do students perceive internet plagiarism and traditional plagiarism differently in terms of their ethical implications;
4. Do students perceive plagiarism to be a part of the culture on their campus;
5. What rationale have students heard to justify plagiarism; and
6. What American cultural values do students think contribute to or deter plagiarism?

Methodology

Respondents

Respondents were selected from a public state university, with a combined undergraduate and graduate enrollment approaching 30,000 students, in the southern region of the United States. The student population is 80.5% Caucasian, 12.6% African American, 2.4% Hispanic, 3.4% “non-resident alien,” 1.4% Asian, and 1.4% other or unknown. The institution characterizes itself as a “student-centered research university.”

Five hundred thirty-seven online undergraduate *Introduction to Sociology* students in the Spring of 2011 were invited to participate. Students were advised that completion of the questionnaire would render full credit and content would not be graded. The students had completed a chapter within the previous month on culture—the concept, key elements, and applications. The class was comprised of 263 freshman, 66 sophomores, 108 juniors, 100 seniors, and three graduate students. Two hundred and two males and 335 females were given the opportunity to participate in the survey. Two hundred and forty usable questionnaires were returned yielding a 45% response rate. Demographic information for this sample is displayed in Table 2.1. Chi square analyses revealed that the gender, $\chi^2(1) = 0.85, p = .36$, and college major of the students, $\chi^2(7) = 7.81, p = .35$, who completed the survey were similar to that of the class

as a whole. However, freshmen, $\chi^2(4) = 12.659, p = .01$, were more likely to complete the survey than were upper classmen, and students receiving an A in the course, $\chi^2(4) = 15.97, p = .003$ were more likely than the others to complete the survey.

Table 2.1

Gender, Class Standing, Course Grade, College of Major

Variable	Sample Frequency (%)	Class Frequency (%)
Gender		
Male	82 (34.2%)	202 (37.6%)
Female	158 (65.8%)	335 (62.4%)
Class Standing		
Freshman	147 (61.3%)	263 (48.7%)
Sophomore	17 (7.1%)	66 (12.2%)
Junior	41 (17.1%)	108 (20.0%)
Senior	35 (14.6%)	100 (18.5%)
Course Grade		
A	128 (53.3%)	195 (42.4%)
B	61 (25.4%)	111 (24.1%)
C	32 (13.3%)	76 (16.5%)
D	12 (5.0%)	35 (7.6%)
F	7 (2.9%)	43 (9.3%)
College Major		
Arts & Sciences	66 (27.5%)	152 (28.5%)
Business	31 (12.9%)	76 (14.2%)
Communication & Info. Science	27 (11.3%)	57 (10.7%)
Education	21 (8.8%)	48 (9.0%)
Engineering	19 (7.9%)	43 (8.1%)
Human Environment Science	21 (8.8%)	70 (13.1%)
Social Work	4 (1.7%)	11 (2.1%)
Nursing	51 (21.3%)	77 (14.4%)

Procedure

The Institutional Review Board of the university approved the study. Potential participants were enrolled in an introductory sociology undergraduate course. Students were

presented with an opportunity to complete an online questionnaire about plagiarism as an extra credit assignment to be turned in online.

Instrument

The research instrument consisted of a questionnaire designed to elicit students' cultural perspectives and understandings of plagiarism on college campuses. It included seven open-ended questions based on the course textbook "Chapter 2, Culture" assignment. The textbook used for the course was *Society: The Basics 10th Ed.* by John Macionis. The chapter covered concepts such as: defining culture, elements of culture and cultural diversity.

In Question One, students were asked to define both plagiarism and Internet plagiarism.

Responses were coded as to whether or not they could define such terms accurately by requiring a version of the definition to include elements of reproduction or inclusion of another person's creative work into one's own work without properly attribution whether from the internet or other sources. Question Two asked if they thought plagiarism was widespread on college campuses. The responses were coded as yes or no.

Question Three asked if students think plagiarism is a part of the dominant culture, subculture, popular culture or not a part of their college campus culture. Responses were coded as dominant, subculture, popular or none.

Question Four asked if there is a difference in ethical implications between Internet plagiarism and traditional plagiarism. Responses were coded as Internet and traditional plagiarism as having the same ethical implications, Internet plagiarism having more ethical implications or Internet plagiarism having less ethical implications.

Question Five asked what justifications students have heard for plagiarizing. Students were able to include as many as they had heard.

Question Six asked whether there were any American cultural values that could contribute to plagiarizing. Students could list as many as they wanted. The eleven American cultural values as defined by sociologist Robin Williams, Jr. (1970) were discussed in the chapter and used for coding responses. These included individualism, activity and work, practicality and efficacy, progress, equal opportunity, material comfort, democracy and free enterprise, freedom, racism and group superiority, science, and leisure. Students were asked to list as many values as they deemed appropriate. Some students directly categorized these values as those listed by Williams. The researcher categorized the responses if they did not.

Question Seven asked whether there are any American cultural values that would deter students from plagiarizing. Students could list as many as they deemed necessary. The American values defined by Williams were used to operationalize the responses. Some students directly categorized these values as listed by Williams. The researcher categorized the responses if they did not.

Data Collection

Students were sent an email giving them the opportunity to complete the questionnaire as an extra credit assignment. They were to complete and return the questionnaire via email. In order to receive credit, names were included either on the questionnaire or in the email. They were advised that completion of the assignment would garner full extra credit, and content would not be graded. They had two weeks to return their completed work.

Analyses

Analyses were performed using SPSS for Windows Version 19. Open-ended responses were collapsed into similar categories, and direct quotes were used to exemplify each category with typical responses. Frequencies were used to determine the prevalence of responses in each

category, and chi square analyses were used to explore the demographic correlates of these response categories, including course grade, gender, class standing, and college of major.

Results

Research Question 1

Can college students define plagiarism and Internet plagiarism? One hundred percent of the 240 students who responded to the questionnaire were able to define plagiarism and Internet plagiarism as displayed in Table 2.2. One student went so far as to say: “Anyone who has graduated from high school should know what plagiarism of all forms is and how wrong it is. They start teaching it in elementary school.”

Research Question 2

Do students perceive plagiarism as a wide spread problem on college campuses? Eighty-four percent of the students perceived it to be a widespread problem on college campuses as displayed in Table 2.2. Respondents commented that “Plagiarism is the cultural norm of all colleges in America today.” “Widespread because all students have to take the same core classes so it is easy to get each others’ work . . . classes are so large that there is no way the professor can keep up with everyone.” “Even on this assignment, other students have asked to see my work and this isn’t being graded.”

Research Question 3

Do students perceive plagiarism to be a part of the culture on their campus? Table 2.2 shows that 75% of respondents thought that plagiarism was a part of their collegiate culture. They commented: “My friends go to different universities and we all laugh about how bad it is—worse than high school.” “It is part of the dominant culture here. Some may think that it is

just the athletes or Greeks because all they want to do is party but that isn't true, that would make it a subculture but it is rampant and includes everyone on this campus.”

Breaking down the responses in terms of culture type, thirty percent felt it was the popular culture (cultural views among the masses). “Partying is the popular culture here and because of that plagiarizing is too.” “It is best defined as popular culture because the book defines this as cultural patterns that are widespread among a society’s population.”

Twenty-five percent said that it was part of the subculture. “The current culture of ‘academic apathy’ on this campus is a subculture because not everyone feels that way.” Twenty-one percent felt that it wasn’t a part of college culture on their campus. “If it were a part of this college’s culture it would be in our [student newspaper].” Only 10% believed that it was part of the dominant culture (able to impose their cultural views on others). “There is general widespread acceptance of cheating here. Every student writing this paper knows at least one person that they have personally witnessed cheating in class and most attest to know who the regular cheaters are in every class. We might not have witnessed someone plagiarizing but we all know how bad it is here.”

Table 2.2

Students' Perceptions Regarding Plagiarism

Variable	Frequency (%)
Define <i>plagiarism</i>	240 (100.0%)
Believe widespread problem	189 (84.0%)
Part of collegiate culture	
Popular	72 (34.8%)
Subculture	60 (29.0%)
Dominant	23 (11.1%)
None	52 (25.1%)
Ethical implications: Internet vs. traditional	
Same	207 (87.7%)
Internet more	2 (0.8%)
Internet less	27(11.4%)

Research Question 4

Do students perceive Internet plagiarism and traditional plagiarism differently in terms of ethical implications? Eighty-eight percent of respondents felt that there was no difference in the ethical implications as shown in Table 2.2. “It is different in terms of content and retrieval but the ethical principles are the same. It can be compared to a computer hacker stealing money online from a bank and a bank robber walking into a bank and stealing money. Both are the equal in being wrong.” “Internet plagiarism is just easier since the Internet has endless places to get information and once you find something you like you can copy and paste into your document, print it and turn it in.” “‘Old-way’ plagiarism you had to go to the library, look through lots of books, magazines, newspapers, etc., then copy it down, go home and type it, then print and turn it in. Ethical considerations are the same. The easier access to Internet plagiarism

doesn't negate that it is theft. Just because one kind of theft is more prevalent doesn't make any less a theft."

Research Question 5

What rationale have students heard for justifying plagiarism? Sixteen different responses were identified: everyone does it, won't get caught by faculty, student is too busy, student didn't have time to complete assignment, easier to get assignment done, it wasn't the entire paper, forgot until last minute, had same idea different wording, didn't know they were, to get a better grade, paraphrased, didn't know how to cite, if on the internet it is public/not copyrighted, faculty didn't explain assignment, paid for it, and couldn't find enough material. These responses were operationalized into eight categories as displayed in Table 2.3.

Forty-four percent ($n=104$) of students stated that it was the *faculty's fault* because the assignment was not explained efficiently or that the faculty would not catch them. "My professor expects too much." "The professor has to grade 60 papers so they aren't going to check them all." "It took so long for me to find this on the internet I know she won't find it." "My instructor isn't 'computer savvy.'" "My class is huge—my instructor doesn't even know my name much less if I plagiarized." "He didn't explain the assignment, so I was confused." "If the professor cared they would check the sources and tell us we would be caught and punished—I think that would decrease the problem, but they really don't care."

It was the society's fault for developing the *internet as public* or constitutes open public information, or a statement to this effect, was given as a response by 34.9% ($n=83$). "We will always have the internet to get information, so why try and act like I will live without it; besides there are no new ideas." "Stuff on Internet is not copyrighted or published so it isn't theft." "Information on the web is 'common knowledge' no one owns it." "Since there is no author

listed it is for everyone to use at will. If they didn't want someone to use their words and ideas, they wouldn't put it on the internet."

Acknowledging their own fault in plagiarizing, 40.3% ($n=96$) of students gave responses dealing with their lack of *time management* skills. "I am too busy." "I ran out of time." "I had too much work in other classes." "I lost my syllabus and didn't know until I ran into a girl from class at a party the night before it was due." "Had a big date the night before—homework can be late." Students also gave rationalizations that it was the *same idea* (27.3%; $n=65$) as their own but perhaps it was written better or they paraphrased. Students gave excuses like: they *didn't know* (29.0%; $n=69$) how to cite properly or did not know they were plagiarizing, it was *not the whole paper* (9.7%; $n=23$), or *everyone does it* (9.2%; $n=22$). Plagiarism is simply an easier way of completing assignments or getting better grades, or simply as a *means to an end*, was given by 34.9% ($n=83$) of respondents. "I need to graduate." "I paid for it." "It is easier and uses less brain power." "I am on academic suspension—I have to make an A." "I don't want to disappoint my parents; they expect me to make all A's." Few students (7.1%; $n=17$) had not heard any justifications for plagiarizing.

Table 2.3

Rationales Students Have Heard for Justifying Plagiarism

Rationale	Frequency (%)
Faculty's fault	104 (43.7%)
Time management	96 (40.3%)
Same idea	65 (27.3%)
Did not know	69 (29.0%)
Means to an end	83 (34.9%)
Not whole paper	23 (9.7%)
Everyone does it	22 (9.2%)
Internet is public	83 (34.9%)
Have not heard any	17 (7.1%)

Multiple response data were examined for the most frequently endorsed responses across different demographics (e.g., gender, class standing, class grade, and college major). Responses that were endorsed with at least 30% agreement within each demographic category were considered the most frequent and are reported in Table 2.4. The justifications for plagiarism were fairly consistent across genders. The most popular justifications for plagiarism reported by females were faculty's fault (44.9%), time management (38.5%), internet is public (35.3%), and means to an end (34.0%). For males, time management (43.9%) was most popular, followed by faculty's fault (41.5%), means to an end (36.6%), internet is public (34.1%), and same idea (34.1%).

The justifications for plagiarism were not as consistent across class standings. The most popular justifications for plagiarism reported by freshmen were faculty's fault (45.2%), time management (41.5%), internet is public (36.3%), and means to an end (35.6%). For sophomores, didn't know (37.5%) was most popular followed by time management (31.3%), faculty's fault (31.3%), and same idea (31.3%). For juniors, internet is public (41.5%) was most popular followed by faculty's fault (34.1%) and didn't know (31.7%). For seniors, time management (54.3%) and faculty's fault (54.3%) were most popular followed by means to an end (45.7%) and internet is public (34.3%).

The justifications for plagiarism were not as consistent across class grade. The most popular justifications for plagiarism reported by students receiving an A in the course were faculty's fault (48.8%), time management (43.3%), means to an end (38.6%), internet is public (35.4%), and didn't know (32.3%). For students receiving a B, time management (41.0%) was most popular followed by means to an end (37.7%) and faculty's fault (34.4%). For students receiving a C, faculty's fault (46.9%) was most popular followed by internet is public (37.5%). For students receiving a D, internet is public (45.5%) was most popular followed by time management (36.4%), faculty's fault (36.4%) and same idea (36.4%). For students receiving an F, internet is public (57.1%) was most popular followed by time management (42.9%).

The justifications for plagiarism were fairly consistent across college majors. The most popular justifications for plagiarism reported by arts and sciences majors were faculty's fault (47.0%), time management (43.9%), and means to an end (31.8%). For business majors, faculty's fault (43.3%) was most popular, followed by time management (43.3%), same idea (36.7%), internet is public (33.3%) and didn't know (30.0%). For communication and information science majors, internet is public (48.1%) was most popular, followed by means to

an end (44.4%), faculty's fault (37.0%), time management (33.3%), and didn't know (33.3%). For education majors, internet is public (50.0%) was most popular, followed by faculty's fault (35.0%), means to an end (35.0%), and time management (30.0%). For engineering majors, faculty's fault (52.6%) was most popular, followed by internet is public (42.1%), means to an end (42.1%), same idea (42.1%), time management (36.8%), and didn't know (36.8%). For human environmental science majors, faculty's fault (42.9%) was most popular, followed by means to an end (38.1%), internet is public (33.3%), and same idea (33.3%). For social work majors, means to an end (75.0%) was most popular, followed by internet is public (50.0%), and faculty's fault (50.0%). For nursing majors, time management (49.0%) was most popular, followed by faculty's fault (43.1%), and didn't know (35.3%).

Table 2.4

Most Frequent Justifications by Gender, Class Standing, Class Grade, and College Major

Demographic / Response	(%)
<i>Gender</i>	
<i>Males</i>	
Time management	43.9%
Faculty's fault	41.5%
Means to an end	36.6%
Internet is public	34.1%
Same idea	34.1%
<i>Females</i>	
Faculty's fault	44.9%
Time management	38.5%
Internet is public	35.3%
Means to an end	34.0%

Table 2.4 (cont)

Most Frequent Justifications by Gender, Class Standing, Class Grade, and College Major

Demographic / Response	(%)
<i>Class Standing</i>	
Freshman	
Faculty's fault	45.2%
Time management	41.1%
Internet is public	36.3%
Means to an end	35.6%
Sophomores	
Didn't know	37.5%
Time management	31.3%
Faculty's fault	31.3%
Same idea	31.3%
Juniors	
Internet is public	41.5%
Faculty's fault	34.1%
Didn't know	31.7%
Seniors	
Time management	54.3%
Faculty's fault	54.3%
Means to an end	45.7%
Internet is public	34.3%
Faculty's fault	34.3%
<i>Class Grade</i>	
A	
Faculty's fault	48.8%
Time management	43.3%
Means to an end	38.6%
Internet is public	35.4%
Didn't know	32.3%
B	
Time management	41.0%
Means to an end	37.7%

Table 2.4 (cont)

Most Frequent Justifications by Gender, Class Standing, Class Grade, and College Major

Demographic / Response	(%)
C	
Faculty's fault	46.9%
Internet is public	37.5%
D	
Internet is public	45.5%
Time management	36.4%
Faculty's fault	36.4%
Same idea	36.4%
F	
Internet is public	57.1%
Time management	42.9%
<i>College Major</i>	
Arts & Sciences	
Faculty's fault	47.0%
Time management	43.9%
Means to an end	31.8%
Business	
Faculty's fault	43.3%
Time management	43.3%
Same idea	36.7%
Internet is public	33.3%
Didn't know	30.0%
Communication / Info. Science	
Internet is public	48.1%
Means to an end	44.4%
Faculty's fault	37.0%
Time management	33.3%
Didn't know	33.3%
Education	
Internet is public	50.0%
Faculty's fault	35.0%
Means to an end	35.0%
Time management	30.0%

Table 2.4 (cont)

Most Frequent Justifications by Gender, Class Standing, Class Grade, and College Major

Demographic / Response	(%)
Engineering	
Faculty's fault	52.6%
Internet is public	42.1%
Means to an end	42.1%
Same idea	42.1%
Time management	36.8%
Didn't know	36.8%
Human Environment Science	
Faculty's fault	42.9%
Means to an end	38.1%
Internet is public	33.3%
Same idea	33.3%
Social work	
Means to an end	75.0%
Internet is public	50.0%
Faculty's fault	50.0%
Nursing	
Time management	49.0%
Faculty's fault	43.1%
Didn't know	35.3%

Research Question 6

What American cultural values do students think contribute to or deter plagiarism? The results for the contributing and deterring values are displayed in Table 2.5.

Contributing Values. When responding to the question of contributing values, a third of the responses ($n=79$) included *individualism*. The concept of personal success was addressed in several statements like this one, “Our culture tells us to do whatever it takes to be successful even if it means cheating.” The individual achievement at all costs concept was most commonly cited for individualism as a contributing value. “There is a strong emphasis on making sure you

are one step ahead of everyone else, hard work and self knowledge has taken a backburner.”

“Instead of valuing the process by which an education is obtained, and the information learned through the process, our cultural value of individual achievement means that rewards are only based on grades.”

Over 18% ($n=44$) of responses included *science* as a contributing American value, frequently mentioning the role of technology, the Internet, and science as bettering American lives. “Science and technology has been the focus of our lives so we feel it is okay to use the Internet for all of our work.” “We have grown up with the Internet and know it will always be here.” “Our culture focuses on the use of technology to better our lives so we think that using the Internet to copy and paste information into our paper is bettering their lives.”

Freedom was included in 18% ($n=42$ times) of answers. To this population of students, freedom meant, “...we don’t have parents looking over our shoulder anymore, we get to do whatever we want.” This value was followed closely by *race/group superiority* ($n=39$ times) at 16%. One respondent evidenced a retribution motive: “Students may feel oppressed or generally inferior to other students and develop the attitude that plagiarism is just ‘getting back’ at students they feel wronged them.” Another alluded to intelligence and inferiority motives: “Students who feel ‘dumber’ than other students may think they have the right to plagiarize because of being inferior.” Other students went so far as to say having money or having group superiority contributed to plagiarizing. “If you can afford to buy a paper and have constant access on your smart phone or iPad to the Internet why not use it to get your work done faster and easier than everyone else?” “If you are in an upper class you have to maintain a certain image of being smarter-so you may have to plagiarize for it.”

A *leisure* dimension was mentioned in 14% ($n=34$) of responses, with one student even justifying plagiarism because Sunday is a religious day: “Some religions believe that Sunday is a day of rest and no work should be done that day. So, you have to copy someone else’s on Monday.” Several pointed to elements of leisure such as football or partying: “Our culture emphasizes that having a good time in college is more important than learning--especially at our school where football and partying is the main focus.”

Table 2.5

American Cultural Values That Contribute To or Deter Plagiarism

Value	Contribute Frequency (%)	Deter Frequency (%)
Activity / Work	7 (2.9%)	59 (24.6%)
Democracy	2 (0.8%)	54 (22.5%)
Efficiency / Practicality	26 (10.8%)	6 (2.5%)
Equal opportunity	20 (8.3%)	21 (8.8%)
Freedom	42 (17.5%)	117 (48.8%)
Individualism	79 (32.9%)	73 (30.4%)
Leisure	34 (14.2%)	20 (8.3%)
Material comfort	14 (5.8%)	2 (0.8%)
Progress	N/ A	12 (5.0%)
Racism / Group superiority	39 (16.3%)	9 (3.8%)
Science	44 (18.3%)	6 (2.5%)
None	25 (10.4%)	7 (2.9%)

Multiple response data were examined for the most frequently endorsed responses of contributing values across different demographics (e.g., gender, class standing, class grade, and college major). Responses that were endorsed with at least 30% agreement within each demographic category were considered the most frequent and are reported in Table 2.6. The contributing values for plagiarism were consistent across genders. The most popular contributing value for plagiarism reported by males was individualism (34.6%) and the same was true for females (34.9%). The contributing values for plagiarism were fairly consistent across class standing. The most popular response of freshmen (35.0%), juniors (32.5%), and seniors (42.9%) was individualism, whereas sophomores' most popular response was science (40.0%).

The contributing values for plagiarism were fairly consistent across class grade. Students receiving an As (37.2%), Bs (30.5%), Cs (36.7%), and Ds (40.0%) identified individualism as the most popular value. Those receiving Ds also endorsed racism/group superiority (30.0%), and those receiving Fs reported none (42.9%). The contributing values for plagiarism were fairly consistent across college major, as well. The most popular response for arts and sciences majors (38.5%), business majors (44.8%), education majors (33.3%), and human environmental science majors (50.0%) was individualism. The most popular response by engineering majors was science (42.1%). The most popular response by nursing majors was racism/group superiority (35.4%), followed by individualism (33.3%). No response was endorsed with at least 30% agreement for communication/information science and social work majors.

Table 2.6

Most Frequent Contributing Values by Gender, Class Standing, Class Grade, and College Major

Demographic / Response	(%)
<i>Gender</i>	
Males	
Individualism	34.6%
Females	
Individualism	34.9%
<i>Class Standing</i>	
Freshman	
Individualism	35.0%
Sophomores	
Science	40.0%
Juniors	
Individualism	32.5%
Seniors	
Individualism	42.9%
<i>Class Grade</i>	
A	
Individualism	37.2%
B	
Individualism	30.5%
C	
Individualism	36.7%
D	
Individualism	40.0%
Racism / Group superiority	30.0%
F	
None	42.9%
<i>College Major</i>	
Arts & Sciences	
Individualism	38.5%
Business	
Individualism	44.8%

Table 2.6 (cont)

Most Frequent Contributing Values by Gender, Class Standing, Class Grade, and College Major

Demographic / Response	(%)
Communication / Info. Science	
N/ A	
Education	
Individualism	33.3%
Engineering	
Science	42.1%
Human Environment Science	
Individualism	50.0%
Social work	
N / A	
Nursing	
Racism / Group superiority	35.4%
Individualism	33.3%

Detering Values. When students were asked which American values may deter plagiarism, almost 50% of responses ($n=117$) included the *Freedom* theme, making a morally responsible choice to ‘do the right thing’: “Everyone is free to pursue their own agenda and stealing from them prohibits that.” “We are supposed to take our own initiative to do what is right not just follow others’ lead.” “If we plagiarize that is like it being a group paper when it really isn’t.”

Individualism as a deterrent value was mentioned by 30.4% ($n=73$) of the respondents with students evidencing the importance of individual merit. “Taking someone else’s work doesn’t help you as an individual be successful.” “We are a competitive country and our achievements are based on personal merit-if you cheat through college you will fail at your job.”

The value of hard work (*activity/work*) as a deterrent was identified in 25% of the responses ($n=59$). “Activity and work encourage actively pursuing goals over taking something

from someone else who has done the work.” “People are supposed to do something for the sake of doing it.” “We are taught that hard work will make you achieve more.”

Democracy (or values students discerned under the term) appeared in 23% ($n=54$) of the answers. This theme was evidenced in a variety of ways: “We should not violate the rights of others by stealing from them.” “Freedom of speech is a government protected right of ours so we should not take that right away by taking someone’s words and using them as our own.”

An *equal opportunity* or fairness value was evident in 8.8% ($n=21$) of the responses. “Everyone deserves an equal and fair opportunity; it isn’t equal opportunity for everyone if some are just cheating.”

Multiple response data were examined for the most frequently endorsed responses of deterring values across different demographics (e.g., gender, class standing, class grade, and college major). Responses that were endorsed with at least 30% agreement within each demographic category were considered the most frequent and are reported in Table 2.7. The deterring values for plagiarism were consistent across genders. The most popular responses reported by males were freedom (51.3%) and individualism (35.0%). The most popular for females were freedom (52.1%) and individualism (30.8%). The deterring values for plagiarism were somewhat consistent across class standing. The most popular responses of freshmen were freedom (49.6%) and individualism (32.1%); for sophomores, equal opportunity (40.0%), democracy (40.0%) and freedom (40.0%); for juniors, freedom (55.0%) and individualism (37.5%); and for seniors, freedom (61.8%), individualism (32.4%), and activity / work (32.4%).

The deterring values for plagiarism were fairly consistent across class grade. Students receiving As identified freedom (52.8%) and individualism (34.4%), Bs identified freedom (50.9%) and individualism (30.9%), Cs identified freedom (48.3%), Ds identified freedom

(50.0%), individualism (40.0%), activity / work (30.0%) and democracy (30.0%); and those receiving Fs identified freedom (57.1%). The deterring values for plagiarism were fairly consistent across college major, as well. The most popular responses for arts and sciences majors were freedom (50.0%) and individualism (37.5%). For business majors, freedom (48.3%) was most popular. For communication and information science majors, freedom (57.8%) was the most popular, followed by individualism (39.1%) and activity / work (30.4%). For education majors, freedom (47.4%) was most popular. The most popular response by engineering majors was freedom (63.2%), followed by individualism (31.6%) and activity / work (31.6%). For human environmental science majors, democracy (30.0%) was the most popular. For social work majors, individualism (50.0%) was most popular followed by activity / work (50.0%) and freedom (50.0%). For nursing majors, freedom (58.3%) was the most popular, followed by individualism (35.4%).

Table 2.7

Most Frequent Deterring Values by Gender, Class Standing, Class Grade, and College Major

Demographic / Response	(%)
<i>Gender</i>	
Males	
Freedom	51.3%
Individualism	35.0%
Females	
Freedom	52.1%
Individualism	30.8%
<i>Class Standing</i>	
Freshman	
Freedom	49.6%
Individualism	32.1%

Table 2.7 (cont.)

Most Frequent Deterring Values by Gender, Class Standing, Class Grade, and College Major

Demographic / Response	(%)
Sophomores	
Equal opportunity	40.0%
Democracy	40.0%
Freedom	40.0%
Juniors	
Freedom	55.0%
Individualism	37.5%
Seniors	
Freedom	61.8%
Individualism	32.4%
Activity / Work	32.4%
<i>Class Grade</i>	
A	
Freedom	52.8%
Individualism	34.4%
B	
Freedom	50.9%
Individualism	30.9%
C	
Freedom	48.3%
D	
Freedom	50.0%
Individualism	40.0%
Activity / Work	30.0%
Democracy	30.0%
F	
Freedom	57.1%
<i>College Major</i>	
Arts & Sciences	
Freedom	50.0%
Individualism	37.5%
Business	
Freedom	48.3%
Communication / Info. Science	
Freedom	57.8%

Table 2.7 (cont.)

Most Frequent Deterring Values by Gender, Class Standing, Class Grade, and College Major

Demographic / Response	(%)
Individualism	39.1%
Activity / Work	30.4%
Education	
Freedom	47.4%
Engineering	
Freedom	63.2%
Individualism	31.6%
Activity / Work	31.6%
Human Environment Science	
Democracy	30.0%
Social work	
Individualism	50.0%
Activity / Work	50.0%
Freedom	50.0%
Nursing	
Freedom	58.3%
Individualism	35.4%

Discussion

Students at this large southern university were unanimous in their responses about being able to define plagiarism. All indicated that they knew what it was and were able to discern the difference between “old fashioned plagiarism” and the Internet variety. Other researchers have not found this degree of knowledge and consensus (Devlin, 2007; Park, 2003). A number of variables may be in play here. There are obvious cultural differences by country, and perhaps by region of this country, in terms of both instilling and having awareness about what it is, and anticipating later discussion, its extent and seriousness as an issue. However, the university from which the data for this research are drawn does not have a concerted and across-the-board program to instill awareness about plagiarism specifically—what now is considered the most

pervasive and dominant type of academic misconduct. Initiatives are largely left to individual professors.

In the present study, participants were students in an online course with the only mention about cheating contained in the course syllabus, as prescribed by university requirements. No specific mention is made about plagiarism. The statement is as follows:

A course instructor or any other person(s) who has reasonable cause to believe a student has engaged in an act of academic misconduct shall report the matter to the divisional academic misconduct monitor (appointed by the academic dean) of the division within which the alleged misconduct occurred. The instructor will take no other action in the matter until the monitor or the dean has reached a decision. When suspected incidents of academic misconduct occur in settings other than an academic division, the matter will be reported to and processed by the academic division in which the student is enrolled. (University Handbook, 2011, p. 94)

But the fact that *all students* in the survey were able to accurately define plagiarism, whether Internet or non-Internet, indicates that “rational ignorance, or that students have a generally poor understanding of what constitutes plagiarism” (Dee & Jacob, 2010, p. 27), is not the case on this campus. This would suggest that we have finally reached the point that concerted efforts to educate students from the early grades up have had a cumulative effect on plagiarism awareness at least, though it seems particularly significant that such awareness does *not* seem to be a factor in deterring plagiarism. Research indicates that students are still highly engaged in the practice. Yet the fact that this particular research indicates that they do know what it is, that is indeed cheating, and that it is serious seems to indicate that the ease of doing it without fear of being caught trumps cultural values.

Most students surveyed for this research (84%) believed that plagiarism is widespread on all college campuses and indicated that they know who is doing it on their campus, which is consistent with the vast majority of current research. One second-semester freshman student indicated that he already knew who the habitual plagiarizers were in each class. Almost three-

fourths of the respondents thought that the practice is part of their campus culture. Thus, there is little ambiguity about plagiarism's prevalence and place in the university. However, beyond attributing the practice as part of their campus culture, students were divided over whether it is part of the popular culture (30%), subculture (25%), or dominant culture (9%). When discussing culture in this context, other studies have either discussed the phenomenon of academic dishonesty as a conflict between youth culture and the norms of the educational system (Colnerud & Rosander, 2009;) or they have declared college campuses as having a "culture of cheating" (Callahan, 2004, p. 197) Students were in an introductory sociology course and had read a chapter dealing with culture several weeks prior to the survey. Therefore, responses can be interpreted at least in part due to their comprehension of the material.

Students in this survey were in agreement on the ethical implications of plagiarism; the vast majority indicated that the practice was wrong, whether through the Internet or not. Interestingly, however, a small group of students perceived Internet plagiarism to be slightly less serious than conventional plagiarism. This minority is consistent with previous research that suggests today's students see the internet as the "only prescription to writing papers" (Arbin, 2009, p. 20) or they felt that this behavior did not constitute plagiarism (Baker et al., 2008). Apparently, the newness of the Internet can no longer be said to be a factor in somehow explaining away or dodging the ethical implications of the practice. Even three years ago, when students were asked if the practice was wrong, nearly all respondents believed that it was, but almost half of them felt that it is socially acceptable (Bernardi et al., 2008).

Justifications

Some justifications for plagiarism are revealing in their implications for reducing it. Of particular significance was that over close to half of the students believed that the faculty played

a significant role in some way in generating a permissive atmosphere for plagiarism. In short, they perceive that faculty often do not care, are too busy to monitor what they are doing, or do not have the technical expertise to detect it. They reported as being much less likely to plagiarize if the faculty indicated early on and often the serious nature of the offense and that they would be caught and punished. The primary threat to the plagiarizer is being caught by the professor. This is all consistent with previous research (e.g., Bennett, 2005; Park, 2004; Pickard, 2005; Selwyn, 2008; Sileo & Sileo, 2008; Stephens et al., 2007; Walker, 2010).

Thus, one can infer that an institutional shift in emphasis will have to occur. Higher education administration, to ensure the academic integrity of the teaching enterprise, should place much more emphasis than in the past on the role of the faculty in not only sensitizing students to the seriousness of plagiarism, but that they will be vigilant and competent in its detection, and that students will be held accountable for the behavior. This emphasis and focus represents the need for a re-balancing of priorities for large public research-oriented universities. Current emphases on faculty grantsmanship, research, and publication should be balanced with teaching function responsibilities that include faculty vigilance on academic dishonesty issues. The challenge of doing this is significant as institutions opt for larger classes, more online instruction, and the use of non tenure-track, contract instructors to carry heavy enrollment loads

There is another dimension to the faculty responsibility issue. It can be argued that students recently out of the high school experience have a tendency to attribute any outside of the classroom assignments as “busy work.” Thus, since the very legitimacy of such assignments can be in question, some will rationalize plagiarism as a justified practice (Yardley et al., 2009). This points to the importance of faculty diligence in explaining the purpose of homework assignments and their linkage to course objectives.

The bottom line, therefore, is regardless of class size and who teaches the class, individual instructors will need to a) emphasize the seriousness of plagiarism; b) impress on the students that they know how to detect it; and c) that offenders will be punished. The fact that these implications are inferred from student-derived perceptions of a cheating culture means that the students themselves see a problem with current practices to mitigate plagiarism.

Other insights into the prevalence of plagiarism coalesce around the usual challenges of being a student. Problems of time management (40.3%) topped the list of reasons. The larger picture of cheating because of time demands and related justifications is that many students are not prepared academically or emotionally for the challenges of university-level work, or they are not focused on academic accomplishment as central to their university experience. But more concrete and immediate factors play a part. These are students mostly at the beginning of their college experience (61% of those who participated in the survey were freshman). They may not yet know how to manage their time demands or yet know how much studying is required or expected of them to be successful.

Plagiarism as a means to an end is revealing of instrumental values of this generation of college students. Simply put, the emphasis is getting a good grade for minimal work. This rationalization reiterates findings of previous research (e.g., Devlin & Gray, 2007; DeVoss & Rosati, 2002; Stephens, Young, & Calabrese, 2007; Yardley et al., 2009). The means-ends justification seems to link closely to the easy accessibility of others' work and the anonymity of students. Students themselves note that large, impersonal classes and the fact that a majority of first and second year course requirements are the same provide incentive and easy access to others' work.

Rationalizations for the practice included the fact that the Internet is, after all, a public source of information. Although students defined Internet plagiarism accurately, and the vast majority stated it carries the same ethical implications as conventional plagiarism, some still feel justified in copying from the Internet, rather than from conventional written works. Students often stated that ideas on the Internet were not copyrighted and therefore were for everyone to use at will. Thus, one can infer that the faculty's challenge is to reassert the concept of intellectual property, specifically in regard to information on the Internet. This also poses a challenge to institutions, as educating faculty on Internet copyright and intellectual laws may also be necessary.

Cultural Values

Values are culturally defined standards that people use to decide what is good and desirable within the society and serve as broad guidelines for social living. Basically, values are the anchor points as to what people within a specific culture use to make choices on how to live, the broad principles that underlie beliefs, and the specific ideas that people hold to be true. Sociologically speaking, the most widely accepted list of American values were defined by Robin Williams, Jr. in 1970 (Macionis, 2009). They include equal opportunity, individual achievement, material comfort, activity and work, practicality and efficiency, progress, science, democracy and free enterprise, freedom, racism and group superiority, and leisure. Often these values cluster together and work in harmony. However, cultural values often come into conflict with each other (e.g., equal opportunity vs. racism and group superiority). Value conflict causes strain and often leads to an awkward balancing act of our beliefs. Sometimes people decide that one value is more important than another. In these cases, a number of outcomes can occur. People may not perceive the contradiction in the first place; they may simply learn to live with

the contradiction; or they can reduce the dissonance (i.e., conflict) by either changing their attitudes and behavior or rationalizing their positions. Responses below reveal the range of outcomes.

When students were asked if any American cultural values contributed to plagiarism, responses indicated that they usually replied consistently with material from the chapter on culture. A third of the respondents stated that individual achievement and personal success contribute to the practice of plagiarism, as it helps them get good grades and graduate. Hofstede concluded that when society increases the value of individualism the focus becomes taking care of oneself at all costs (1980; 1991). For example, “as the level of individualism for a country increased, students perceived unethical actions as being more acceptable” (Bernardi et al., 2008, p. 375).

America’s emphasis on science to improve one’s life was given in reference to using the Internet to plagiarize. The body of evidence indicates that digital or Internet plagiarism has surpassed conventional forms (Butakov & Scherbinin, 2009; Stephens, Young & Calabrese, 2007; Tackett et al., 2010). Individual freedom to do as one wants, and the need for leisure time were also indicative of the sample’s newfound independence. Group superiority was directly related to the students seeing plagiarism as occurring within certain social groups and not in others.

Students felt overwhelmingly that American cultural values deter plagiarism rather than contribute to it. Personal freedom, to do what is right, topped this list of values. Respondents felt that plagiarism would not improve their personal success and thus concluded that individual achievement and success deters them from its use. Along those same lines, people in the U.S. tend to value action over reflection and taking control of events over passively accepting them,

activity and work. Interestingly, respondents stated that democracy and free enterprise deterred them from plagiarizing, since stealing someone's ideas takes away their freedom of speech.

Conclusion

Since perceptions of plagiarism are culturally conditioned, a strong case can be made that institutions of higher education actively participate in changing these perceptions and begin to facilitate a culture of learning, rather than a culture of cheating. Cheating of all forms can be “most effectively addressed at the institutional level” (McCabe et al., 2001, p. 42).

First, a case can be made that leaders in higher education need to reduce the emphasis on competition and grades. By deemphasizing competition and protecting students' privacy in terms of achievement levels, the process of learning becomes the desired outcome, instead of empirical measures and public acknowledgement. Students themselves acknowledge that learning isn't the goal but good grades are.

Secondly, administrators need to encourage faculty to embrace teaching along with other academic pursuits. Priority should be given to achieving a better balance between educating students and the research function with its emphasis on grants and publication. Students currently perceive faculty to care more about their career than teaching.

Lastly, a social norms campaign should be devised that directly addresses student misperceptions of the incidences of academic misconduct. From the perspective of social norm theory, much of peoples' behavior is influenced by their perceptions of how others behave (Marshall, 1994). Accordingly, if students perceive plagiarism to be a significant part of their collegiate culture, they will be more likely to participate in the practice. By this logic, the effectiveness of an anti-plagiarism campaign depends on providing students with accurate information about their peers' behaviors, which allows them to adjust their perceptions.

While these findings have potential implications for changing the student collegiate culture, they must be viewed in the light of some limitations. The sample is small and from a university from the southern region of the United States where academic integrity may not have been a primary emphasis over the past decade, due to the emphasis on research productivity, attracting a larger student base, and a number of other factors. Student perceptions in different regions of the country and collegiate emphasis may provide varying results. Since the majority of the sample were freshmen, it would benefit future research to incorporate older students. As a slight majority of students receiving an A in the course completed the survey for credit, future research would benefit from having more students from all grade segments participating.

Overall, these findings should provide a better understanding of students' perceptions of plagiarism and of a culture of cheating in universities where learning is not the primary focus. These findings may assist administrators in developing a culture of learning by changing the attitudes, values and beliefs of all of the stakeholders in these universities.

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CHAPTER III:
REDUCING PLAGIARISM THROUGH ASSIGNMENT DESIGN IN LARGE
INTRODUCTORY CLASSES

Introduction

The copying of others' work or ideas without attribution, treating the material as if it were one's own, can occur in any number of areas, including the copying of art, music, lab work, computer programming, and technology. However, the focus of this research is on *textual* plagiarism as practiced in students' written work. This issue looms potentially large in contemporary higher education settings, as they are often characterized by participant anonymity and lack of student-professor interaction (Varvel, 2005). Accordingly, this researcher explored the relative effectiveness of three assignment strategies to reduce plagiarism in large classes in the context of the modern university and Internet cut-and-paste technology.

Dramatic increases in internet usage in the larger society and concomitant growth of large courses, particularly in public institutions of higher education, pose a number of critical challenges. These include quality of instruction, learning effectiveness, and development of critical thinking skills, as compared with traditional smaller courses. Yet the plagiarism issue, if not appropriately addressed, may transcend these concerns and strike at the heart of the authenticity of the educational experience. If most students are merely copying others' work without citation, extension, or application of critical thinking skills, then other considerations may be seen as besides the point or irrelevant.

Therefore the primary objective of this research was to develop empirical evidence for effective strategies that *faculty* can use to combat plagiarism in large introductory courses. As macro-level trends in size and focus of the modern university may preclude effective prevention strategies in the near future, the focus on faculty involvement becomes ever more important. The study hypothesis is that assignment types requiring critical thinking and personal involvement with the course material will have fewer incidences of plagiarism.

Literature Review

The literature on academic misconduct is both abundant and varied. The focus here, however, was on the nature and extent of cheating in higher education settings and providing a historical perspective on institutional response to the issue. Out of this context emerges the role of faculty in significantly reducing academic conduct, specifically plagiarism, and an assessment of effective strategies they can employ to counter current trends.

Nature and Extent of Academic Misconduct

Studies of various forms of academic misconduct in the United States date back to the 1940s. Drake (1941) found that almost one-fourth of students surveyed admitted to cheating in one form or another. A study published 23 years later of a sample of 5,000 students from 99 colleges and universities in the United States revealed that three-fourths reported being engaged in some form of academic dishonesty (Bowers, 1964). In fact, by most accounts, instances of academic dishonesty in higher education increased during the last few decades and remain high (Bernardi, Baca, Landers, & Witek, 2008; MacDonald & Carroll, 2006; McCabe, 2001).

Authorities speculate that the contemporary academic environment, ready access to fellow classmates and their work, social networks that may have assignment and test files, and even an

institutional culture of cheating may all play a role in academic misconduct (Anderman, Freeman, & Mueller, 2007; McCabe, 2005; Vowell & Chen, 2004).

Plagiarism constitutes a significant segment of academic misconduct and is of particular concern, since incidences of this type of cheating appear to be increasing. With the development of computer and Internet technology, instant access to information, cut-and-paste technology, and potential anonymity of behavior, some argue that online settings create an easy climate for plagiarism (Duggan, 2006; Evans, 2006; Maurer, Kappa, & Zaka, 2006; Thompson, 2006). The use of online term paper writing services further compounds the rise of cutting and pasting behavior (Briggs, 2008; Dee & Jacob, 2010; Ma, Wan, & Lu, 2008; Walker, 2010). Researchers note that in the past plagiarism required a lot of work: going to the library, searching, reading and copying, however, a paper can now be put together by using online sources within a short period of time (Batane, 2010; Scanlon, 2003; Tackett, Claypool, Wolf, & Antenucci, 2010).

The body of evidence indicates that digital or Internet plagiarism has surpassed conventional forms (Butakov & Scherbinin, 2009; Stephens, Young & Calabrese, 2007; Tackett et al., 2010). A 2002 study revealed that almost 25% of 698 students self reported that they went online and cut and pasted text without proper referencing (Scanlon & Neumann, 2002). To complicate the issue, Baker, Thornton, and Adams (2008) found that although 90% of the students they surveyed admitted to cheating, they did not perceive digital plagiarizing as academic dishonesty. Martin, Rao, and Sloan (2009) found that the instances of digital plagiarism were actually higher than students were willing to admit in self-report surveys.

Higher Education's Response to Academic Misconduct

Institutional responses to academic misconduct have varied according to the larger cultural and social context in which they operate (Bastedo, 2007). From a sociological

perspective, institutions of higher education are indeed “organizations,” so organizational theories and perspectives apply. As such, organizations have different leadership styles and resources; they do not operate monolithically in their responses to outside influences. And these influences change as their social and cultural contexts change over time (Lawrence & Lorsch, 1967). Thus, to understand institutional responses to academic misconduct is to understand the historical context of these actions.

Honor emphasis (1900 – 1945). Historically, higher education officials were slow to confront academic dishonesty (Park, 2003 & 2004; Scanlon, 2003; Sutherland-Smith, 2005). In fact, in an early era, “student cheating was perceived less as a criminal or immoral act and more as ‘charming foolery’” (Briggs, 1969, p. 31). Institutions were not too concerned about misconduct during a period typified by small classes and oral exams (Bastedo, 2007). Yet some recognition of academic misconduct as a troublesome issue is evidenced in the literature as far back as 1918, when an education review commission noted the importance of instilling in students character traits governing ethical conduct (Bertram-Gallant, 2008). Bertram-Gallant also noted that this concern was at both secondary and post-secondary levels and subsequently reinforced by the American Council on Education (1937) and again, 70 years later by the National Leadership Council (2007), which focused on post-secondary education needs.

The issue evolved, throughout the twentieth century, to an emphasis on “student integrity,” with a focus on “. . . the character, traits, motivations of the individual actor” (Bertram-Gallant, 2008, p. 49). This topic, in fact, has been widely explored over the years (e.g., Angell, 1928; Blum, 2009; Bok, 1990; Briggs, 1969; Landis, 1954; McBee, 1978; McCabe & Trevino, 1993, 1997; Murdock, Miller, & Kohlhardt, 2004; Nagin & Pogarsky, 2003; Passow, Mayhew, Finelli, Harding, & Carpenter, 2006; Pulvers & Diekhoff, 1999; Thelin, 2004). One

outgrowth of the student integrity focus was an early emphasis on developing student codes of academic conduct (e.g., Angell, 1928; Blum, 2009; Parr, 1936). But student honor codes without active institutional enforcement eventually became outmoded on many campuses (Blum, 2009). After World War II, with the accelerating trend toward large classes, written examinations, and outside assignments, colleges and universities began to adopt and monitor their own honor systems, because self-imposed codes of conduct did not work well in this environment (Bertram-Gallant, 2007; Blum, 2009).

Enforcement emphasis (1945 – 2000). Many institutions turned away from student-monitored and enforced honor systems to a more external punitive approach toward cheating, based on specific rules and punishments. Institutions of higher education simply had not been able to maintain a system that effectively supported and enforced individual integrity (Walton, 2010). A number of reasons are advanced for this. Classes were larger, with a resultant distancing of students from their professors. The classroom was becoming an impersonal place, where professors lectured and students took notes (Burgoon, Stoner, Bonito, & Dunbar, 2003; Kelley & Bonner, 2005; Rowe, 2004). Studies of students reveal that if they experience the classroom as less personalized, less involving, less cohesive, less satisfying or less individualized they are more likely to cheat (Lovett, 2009; Pulvers & Diekhoff, 1999; Stuber-McEwen, Wisely, & Hoggart, 2009). There was an accompanying shift from learning as a process of interaction and critical thinking between students and the professor. The change was from the process of learning to the *results* of learning—from critical thinking and examination of assumptions and logic to grades (Selwyn, 2008). Nuss (1984) attributed student plagiarism to the failure of institutions in higher education to emphasize the value of independent scholarship to the student population. White (1993) noted that “Plagiarism fits nicely into the gamesmanship of learning.

We give too much weight to the passive adoption of others' ideas, to the mindless repetition of slogans as if they were thoughts" (p. 46).

This emphasis on adherence to rules is associated with and considered most prevalent in large research universities (Bertram-Gallant, 2008). Under the 'rule compliance strategy' student academic misconduct was approached in the same way as other forms of undesirable behaviors—such as drinking (Blum, 2009). Violations were codified and operationally defined. Yet plagiarism did not appear high up on the list of rule priorities during this era. A 40-year-old study (Bowers, 1964) asked administrative officials and student leaders to cite penalties for various cheating offenses among all of the infractions that were listed and for which students were usually suspended or expelled. The infraction listed as *last* was plagiarism of a term paper. Bowers goes on to point out that plagiarism ranked far behind violating rules about having guests of the opposite sex in dorm rooms and stealing books from the library. But a key point in this regard “. . . was that institutional discourse surrounding plagiarism in universities became founded in the language of law” (Sutherland-Smith, 2010, p. 6). Thus, cheating was viewed as not an issue of pedagogy, but as a disciplinary matter (Michaels & Miethe, 1989). Rather than being an issue for students and faculty, judicial or other student affairs officials handled academic misconduct as an *administrative* matter (Hall & Kuh, 1998). This development was concomitant with laws protecting student rights to privacy and autonomy.

The change to an administrative enforcement emphasis corresponded and accelerated with a shift in faculty responsibilities from teaching to research (Bertram-Gallant, 2008; Sutherland-Smith, 2008). Added to less concern about the importance and responsibilities of effective teaching (including mitigating academic misconduct) was the development of mass education. This was marked by great “. . . expansion and diversification of the student body . . .

as new opportunities arose for students of diverse socioeconomic classes, races, ages, abilities and gender” (Ward, 2003, p. 36).

Effects of commercialization. Commercialization of higher education represents the latest trend that, among other variables, has affected institutional response to student academic misconduct. Factors that had begun during the earlier enforcement era in higher education—larger and less personalized classes, emphasis on learning as product rather than process—became even more accentuated. At least two issues contributed to the trend: financial difficulties of colleges and universities caused by decreases in funding to higher education from the 1970s to the 1990s and a shift to “universal access” to higher education (Milliron & Sandoe, 2008; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004; Thelin, 2004).

External funding through grants had become a viable solution to the budgetary issues. The faculty was spurred toward grant seeking through the tenure, promotion, and salary incentives system and the development of grant management entities within institutions. Being a good professor is now defined by publication records and grant monies received, not by the quality of education produced (Milliron & Sandoe, 2008).

Significant annual increases in tuition further signify the commercialization trend in higher education. This draws increasing interest in and scrutiny of institutions of higher education from students and their parents, as they seek their return on the dollar (Murphy, 2009; Thelin, 2004). Martin (1994) asserts that emphasis in higher education has shifted from pervasive problems of educating students to issues of profits. This assertion is at least indirectly supported by Mertz (2004) and Ma, Wan, and Lu (2008), who maintain that plagiarism does not receive sufficient punishment as a deterrent because administration is focused on issues other than educating. Thus, in the contemporary university, institutional integrity tends to be

compromised by the pressure to please the client (i.e., students and parents) (Slaughter & Rhoades, 2004; Sutherland-Smith, 2008).

In the meantime, competition is fierce for admission to the “best” schools and programs. The grounds for competition are grade point averages and scores on standardized admission tests. Thus, the pressure is on to perform in this ever more competitive environment, and so is the pressure to cheat (Murphy, 2009; Sutherland-Smith, 2008). Though it is difficult to establish a cause-and-effect relationship, lack of commitment to educating and effective response to rampant cheating seems to be linked to the commercialization trend (Hallak & Poission, 2007).

Effects of computer technology. Observers point to computer technology and the rise and spread of the Internet as now playing a major role in student behavior and institutional response to issues of academic integrity (Maruca, 2005; Townley & Parsell, 2004; Ward, 2003). The new trend is “cooperative cheating,” whereby students attempt to help themselves while helping others through the sharing of resources via the Internet and divvying up the work required on assignments using computer technology (Bertram-Gallant, 2007). Students of today’s internet generation “. . . have been immersed in a culture that revels in trying on different personae and sharing freely” (Blum, 2009, p. 2).

Colleges and universities began to recognize that the Internet provided increased opportunities and resources for students’ academic misconduct; students could easily copy material from any available source and post it into their own papers. (Bertram-Gallant & Drihan, 2010, p. 25)

Two trends of instruction in higher education trace their genesis, at least in part, to Internet technology. One that both reflects and compounds the issues of the current commercialization phase in higher education is the distance education movement. Initially geared largely toward the adult learner and those in rural areas without easy access to higher education, Internet technology now gives higher education officials the opportunity of extending

their institution's reach. Realizing that public universities in particular can no longer rely on state revenues and traditional students, administrators see the potential of online courses to increase their enrollments and funding streams substantially (Sileo & Sileo, 2008; Tate, 2010). Another Internet technology-driven trend is the increasing use of "hybrid" courses (i.e., conventional courses with a significant online component). These are considered as efficient generators of student credit hours production; large numbers of students can be taught with small numbers of faculty (Sileo & Sileo, 2008; Tate, 2010).

Toward a holistic approach (2000 – present). The emerging emphasis is on a more holistic approach to academic misconduct (Bertram-Gallant, 2008; Sutherland-Smith, 2008). The idea is to balance the threat of punishment of the institution with sound pedagogy of the faculty (Compton & Pfau, 2008; Devlin, 2006; Long, Errami, George, Sun, & Garner, 2009; MacDonald & Carroll, 2006; Sutherland-Smith, 2008). Thus, faculty at institutions of higher education now have an important role in preventing, allowing, or even encouraging academic misconduct (Roache-Fedchenko, 2009, Sutherland-Smith, 2008).

Faculty-student interaction is an important component of the holistic approach. Particularly important is the instructor's relationship with the students and the resulting classroom environment. Students report being less likely to cheat when they perceive instructors to be friendly, approachable, and respectful in their interactions (Garavalia, Olson, Russell, & Christensen, 2007). Broader evidence suggests certain teacher characteristics and classroom philosophy can actually contribute to a climate of student misconduct (Bernardi et al., 2008; McCabe, 2005; Pulvers & Diekhoff, 1999). In essence, those instructors who do not provide clear and well organized learning environments, individualized attention, and who are perceived

to be unfair in their expectations and grading may unwittingly produce an environment of student dishonesty (Stuber-McEwen et al, 2009).

A second component of the holistic approach is problem recognition. That is, recognition by the instructor of the nature and extent of the plagiarism problem and acceptance of responsibility for deterring it are pivotal in reducing it (Howard & Davies, 2009; Staats, Hupp, Wallace & Gresley, 2009). Thomas (2004) noted that "...faculty perceptiveness is the first line of defense against plagiarism" (p. 428). As a case in point, Parameswaran and Devi (2006) report that in undergraduate engineering labs, lab reports were routinely copied, yet teaching assistants and lab technicians did not assume responsibility for mitigating the misconduct, and it increased rapidly. Crown and Spiller (1997) point to the implications of not addressing the cheating issue, noting that "when cheating is not addressed, students may perceive the environment as unfairly weighted towards those who do not play by the rules, and respond by either refusing to participate or joining the rule breakers" (p. 127).

A third component, social control within the classroom is also in the hands of the faculty (Garavalia et al. 2007; Jocoy & DiBiase, 2006; Lovett-Hooper, Komarraju, Weston, & Dollinger, 2007; Park, 2003; Tackett et al., 2010; Thomas, 2004; Willen, 2004). An instructor's reputation in regard to how he/she deals with cheating incidences contributes to this factor (Faucher & Caves, 2009; Sutherland-Smith, 2008). Keith-Spiegel and associates (1998) found that those who failed to punish academic misconduct might have actually reinforced cheating as the norm. "Current faculty inaction regarding improving course security practices contributes to greater incidences of cheating" (McCabe, 2005). Disincentives for academic dishonesty, likelihood of being caught, and perceived severity of penalties by the institution were all found to be factors in mitigating plagiarism (Dee & Jacob, 2010; McCabe & Tevino, 1993; Smyth & Davis, 2003;

Tackett, 2010). When students perceived the instructor to be vigilant and fair, they were less likely to cheat (Bernardi & Adamaitis, 2006; Faucher & Caves, 2009; Genereux & McLeod, 1995; Lemons, Martin, & Seaton, 2011; Ledwith & Risquez, 2008; Milliron & Sandoe, 2008).

As the trends toward increased usage of computer technologies and expanding commercialization of higher education continue, faculty might have the most important role in mitigating plagiarism in higher education. And to the topic of this research, the first line of defense for faculty is course design. In fact, some authorities maintain that faculty can and should be “designing out” plagiarism (Gannon-Leary, Trayhurn & Home, 2009).

The Case for Course Design

Numerous researchers point to course design as a potentially important factor in preventing plagiarism (e.g., Austin & Brown, 1999; Compton & Pfau, 2008; Gannon-Leary et al., 2009; Gibson et al., 2006; McLafferty & Foust, 2004; Parameswaran & Devi, 2006; Price, 2002; Samuels & Bast, 2006). Among the most integral elements of course design are assignment strategy and structure. Specific strategies include designing assignments for collaborative work (Hart & Friesner, 2004; Kasprzak & Nixon, 2004; McCord, 2008; Price, 2002), turning in the actual sources used in research assignments (Austin & Brown, 1999; Hart & Friesner, 2004; McCord, 2008; Sterngold, 2004; Samuels & Bast, 2006), having students submit work through plagiarism detection software (Batane, 2010; Baker, Thornton, & Adams, 2008; Barrett & Malcolm, 2006; Berry, Thornton, & Baker, 2006; Briggs, 2008; Chaudhuri, 2008; Gannon-Leary et al., 2009; Heikes & Kucsera, 2008; Ledwith & Risquez, 2008; Milliron & Sandoe, 2008; Walker, 2010), having students turn in progressive work products for large projects (Gibson et al., 2006; Kasprzak & Nixon, 2004; McCord, 2008; Samuels & Bast, 2006; Sterngold, 2004), varying the nature and frequency of assignments (Batane, 2010; Bernardi et al.,

2008; Gibson et al., 2006; Hart & Freisner, 2004; McCord, 2008; Olt, 2002; Sterngold, 2004; Samuels & Bast, 2006; Sutherland-Smith, 2008) and developing assignments that require evaluation and reflection of material, rather than collation of materials (Batane, 2010; Howard & Davies, 2009; Olt, 2002; Samuels & Bast, 2006; Sterngold, 2004; Sutherland-Smith, 2008).

These design strategies are inferred from students' self-reports of cheating, research assumptions, or student and faculty perceptions for reducing cheating behaviors. Yet there appears to be a dearth of *empirical* evidence to support specific strategies. The research hypothesis for this study is that the more students are required to critically evaluate and apply the content, the less they will plagiarize on assignments.

Plagiarism Detection

A key problem in researching plagiarism has been the lack of reliable empirical data on the frequency, nature and extent of plagiarism in written assignments. With the development of "plagiarism detection" tools (e.g., Turnitin, My Drop Box, EVE, Safe Assign, PlagiServe, WcopyFind and Wordcheck), a widely used array of tools for operationalizing plagiarism has emerged (Ledwith & Risquez, 2008). Although not detecting all plagiarism, these services provide a way to measure the level of similarity between students' work and material publicly accessible online. The advantage to the instructor is that the search and reporting are automated, so time is saved in presenting the results and in determining the plagiarism source.

"Turnitin" detection software is the most globally utilized plagiarism detection service available (Badge & Scott, 2009; Batane, 2010; Butakov & Scherbinin, 2009). The system compares submitted papers to the ones from its database and provides a report that indicates the percentage of similarity between the two (Butakov & Scherbinin, 2009; Davis & Carroll, 2009; Sutherland-Smith, 2008).

This technology creates unique digital “fingerprints” of the text strings in a document and compares these unique patterns to the unique patterns of other content in iParadigms’ databases. Matching text is highlighted in an Originality Report showing a fully formatted image of the paper with a list of matching sources. iParadigms’ massive databases include an archive of all the papers previously submitted to Turnitin (over 130 million) plus content from millions of websites (over 13 billion pages), academic publications, online encyclopedias, news agencies and other sources likely to be used for plagiarism. (iParadigms, 2011)

Though not all studies support the accuracy and effectiveness of this text-matching software (e.g., Evans, 2006; Kaner & Fielder, 2008; Lukashenko, Graudia, & Grundspinkes, 2007; Potthast, Stein, Barron-Cedefio & Rosso, 2010) a large body of evidence suggests that this software can be an effective tool in detecting plagiarism (e.g., Badge & Scott, 2009; Baker et al., 2008; Barrett & Malcolm, 2006; Batane, 2010; Briggs, 2008; Chaudhuri, 2008; Dahl, 2007; Davis & Carroll, 2009; Heikes & Kucsera, 2008; Ledwith & Rusquez, 2008; Maurer et al., 2006; Milliron & Sandoe, 2008; Ogilvie & Stewart, 2010; Rees & Emerson, 2009; Tackett et al., 2010; Walker, 2010).

The Present Study

Since empirical data on mitigating plagiarism through assignment types appear to be largely absent or nonexistent, this researcher employs Turnitin to provide such data. Four specific research questions guided the investigation:

1. To what extent does plagiarism occur in assignments designed to illicit student opinions of sociological topics in a large course;
2. To what extent does plagiarism occur in large courses using different critical thinking randomized assignments;
3. To what extent does plagiarism occur in large courses requiring critical thinking skills and personal involvement with the material; and
4. How do these respective strategies compare in instances of plagiarism?

Methodology

Sample

Participants were 2,826 students enrolled in *Introduction to Sociology* at a southern university in the United States—all taught by the same instructor. Class sizes were 861 students in Fall 2008, 968 in Fall 2009 and 997 in Fall 2010. Table 3.1 indicates the percentages of males and females. There was a marginally significant difference in student enrollment by gender across the years, $\chi^2(2) = 11.09, p = .004$, due to a slight (6%) increase in females in 2009. There was no significant difference in student enrollment by year in college.

Table 3.1

Cross-Tabulations for Gender by Assignment Type (Year)

	Assignment Type (Year)		
	2008	2009	2010
<i>Gender</i>			
Male	344 (40.0%)	321 (33.2%)	390 (39.1%)
Female	517 (60.0%)	647 (66.8%)	607 (60.9%)

Procedure

During the three semesters, students were provided identical instruction of the academic integrity policy of the university in the class syllabus; no changes to the policy were made during the study. The dependent variable, Turnitin originality scores, was collected and available from the three semesters of *Introduction to Sociology* courses taught by the same instructor. The study was approved by the Institutional Review Board of the participating university.

The independent variable for this study was the assignment type, which consisted of three weekly one-page assignments that varied across the three semesters. The first assignment type

(2008) was designed to illicit students' opinions in relation to the sociological concepts presented in the textbook. The second assignment type (2009) employed different randomized questions within the assignment; questions were assigned randomly by the computer to prevent students from having the same questions (Batane, 2010; Bernardi et al., 2008; Gibson et al., 2006; Hart & Freisner, 2004; McCord, 2008; Olt, 2002; Sterngold, 2004; Samuels & Bast, 2006; Sutherland-Smith, 2008). These questions centered on text content, and references to the text were required. The third assignment type (2010) consisted of assignments requiring application of concepts and personal involvement with the material (Batane, 2010; Howard & Davies, 2009; Olt, 2002; Samuels & Bast, 2006; Sterngold, 2004; Sutherland-Smith, 2008). These assignments involved students conducting mini sociological experiments and then analyzing the data using sociological concepts and theories from the text material. References to the text also were required. All assignments were run through Turnitin after completion of the semesters.

Three chapter assignments were randomly chosen throughout the semester for each assignment type. The same chapter assignments were used for all three semesters. Accordingly, the 2008 student population generated 1,429 submitted papers, 2009 generated 1,588 submitted papers, and 2010 generated 1,614 submitted papers, for a total of 4,631 submitted papers.

Measure

For purposes of this research, plagiarism is operationalized as the dependent variable and measured using "Turnitin" plagiarism detection system. The detection system compares submitted papers to the ones from its database and provides a report that indicates the percentage of similarity between the two.

This technology creates unique digital "fingerprints" of the text strings in a document and compares these unique patterns to the unique patterns of other content in iParadigms' databases. Matching text is highlighted in an Originality Report showing a fully formatted image of the paper with a list of matching sources. iParadigms' massive

databases include an archive of all the papers previously submitted to Turnitin (over 130 million) plus content from millions of websites (over 13 billion pages), academic publications, online encyclopedias, news agencies and other sources likely to be used for plagiarism. (Turnitin.com, 2011)

In brief, Turnitin functions in the following way: once a text is uploaded to Turnitin's system, it provides an originality report. The report suggests an overall percentage of the student's text that matches sources within the database, and indicates the level of match with a percentage score range: 0 %, 1-24%, 25-49%, 50-74%, and 75-100%. These groupings represent categories of overlap: overall overlap, internet overlap, publication overlap, and student paper overlap. However, for the purpose of this study, 100% was separated to form an individual group. Thus, the groupings were 0%, 1-24%, 25-49%, 50-74%, 75-99%, and 100%.

Analyses

Analyses were performed using SPSS for Windows Version 19. Frequencies and percentages were used to describe the data, and chi square test for independence was used to assess whether there were differences in percentages of plagiarism by assignment type. The dependent variable was the percentage of overlap with existing material as detected by the Turnitin system across different sources (overall, internet, publication, and student).

Limitations

Turnitin matches only material found on the internet or within its database. Generally, material from textbooks can be matched only if it has already been put on the Internet in some form, such as a prior student paper submitted in the Turnitin database. Turnitin software may not detect material from password-protected databases, which limits its accuracy. The software itself also does not acknowledge when a student properly cites the material, thus, increasing his/her overlap scores.

The assignments for this study were not originally designed to prevent plagiarism or to be analyzed using Turnitin. The weekly assignments chosen for this study were run through Turnitin after completion of the semester for instructor evaluation.

The study is limited to a university in the southern region of the United States where plagiarism detection digitally or otherwise may not be a priority of the administration as the perception of research focused institution faculty's value is based primarily on grant monies obtained and number of publications.

Findings

Table 3.2 displays the frequencies of submitted paper overlap across the three assignment types. Overlap of some sort was identified in 34% of the assignment type used in 2008, 66% of the assignment type used in 2009, and 66% of the assignment type used in 2010. A chi square test for independence was conducted to determine whether there was a relationship between the assignment type and overall overlap, that is, whether the distribution of overall plagiarism differed over the assignment types using a $p < .05$ level of significance. Results indicated a significant relationship between these variables, $\chi^2(2) = 523.18$, $p = .001$. These data indicate, generally speaking, the greater percentages of overlap were more represented in 2009 and 2010 than in 2008. However, the exception is that 2008 was more polarizing: there was either very little overlap (46% in 0% category), or a lot of overlap (36% in 100% category).

Table 3.2

Cross-Tabulations for Percent of Overall Overlap by Assignment Type

	Assignment Type (Year)		
	2008	2009	2010
<i>Overlap</i>			
0%	940 (46.0%)	554 (27.1%)	551 (26.9%)
1-24%	379 (22.1%)	688 (40.0%)	651 (37.9%)
25-49%	45 (7.8%)	202 (35.1%)	329 (57.1%)
50-74%	6 (6.0%)	55 (55.0%)	39 (39.0%)
75-99%	3 (8.6%)	20 (57.1%)	12 (34.3%)
100%	56 (35.7%)	69 (43.9%)	32 (20.4%)

Table 3.3 presents an overview of submitted assignments categorized by Turnitin as having overlap from publications. A chi square test for independence was conducted to determine whether there was a relationship between assignment types (year) and percentage of publication overlap, that is, whether the distribution of overlap of publications differed over the categories of assignment types, using a $p < .05$ level of significance. Results of this analysis indicated no significant relationship between the variables due to the low frequencies. However, these data indicate that publication overlap was more concentrated in 2009 across the board, though the years were equivalent in terms of those in the 0% category. Due to the low frequencies in the 25-100% range, a second chi square analysis was conducted using collapsed categories comparing the 0-24% categories to anything greater than that (25-100%). Results indicated a significant relationship between these variables, $\chi^2(2) = 52.04, p = .001$ (see Table 3.4).

Table 3.3

Cross-Tabulations for Percent of Publication Overlap by Assignment Type

	Assignment Type (Year)		
	2008	2009	2010
<i>Publication Overlap</i>			
0%	1421 (32.9%)	1384 (32.1%)	1512 (35.0%)
1-24%	8 (2.8%)	177 (61.7%)	102 (35.5%)
25-49%	0 (0.0%)	22 (100.0%)	0 (0.0%)
50-74%	0 (0.0%)	4 (100.0%)	0 (0.0%)
100%	0 (0.0%)	1 (100.0%)	0 (0.0%)

Table 3.4

Cross-Tabulations for Percent of Publication Overlap by Assignment Type: 0-24% vs. 25-100%

	Assignment Type (Year)		
	2008	2009	2010
<i>Publication Overlap</i>			
0-24%	1429 (31.0%)	1561 (33.9%)	1614 (35.1%)
25-100%	0 (0.0%)	27 (100.0%)	0 (0.0%)

Table 3.5 displays the number and percentage of submitted papers categorized by Turnitin as having overlap from Internet sources. A chi square test for independence was conducted to determine whether there was a relationship between assignment types (year) and percentage of Internet overlap, that is, whether the distribution of overlap of Internet sources differed over the categories of assignment types using a $p < .05$ level of significance. Results of this analysis indicated no significant relationship between the variables due to the low

frequencies. However, these data indicate that once again the higher percentages of overlap were concentrated in 2009 and 2010; the three years were fairly equivalent at the 0% category. Due to the low frequencies in the 25-100% range, a second chi square analysis was conducted using collapsed categories comparing the 0-24% categories to anything greater than that (25-100%), using a $p < .05$ level of significance. Results indicated a significant relationship between these variables, $\chi^2(2) = 100.85, p = .001$ (see Table 3.6).

Table 3.5

Cross-Tabulations for Percent of Internet Overlap by Assignment Type (Year)

	Assignment Type (Year)		
	2008	2009	2010
<i>Internet Overlap</i>			
0%	1281 (39.6%)	891 (27.6%)	1062 (32.8%)
1-24%	133 (11.2 %)	561 (47.3%)	491 (41.4%)
25-49%	10 (6.1%)	100 (60.6%)	55 (33.3%)
50-74%	3 (9.1%)	25 (75.8%)	5 (15.2%)
75-99%	2 (16.7%)	9 (75.0%)	1 (8.3%)
100%	0 (0.0%)	2 (100.0%)	0 (0.0%)

Table 3.6

Cross-Tabulations for Percent of Internet Overlap by Assignment Type (Year): 0-24% vs. 25-100%

	Assignment Type (Year)		
	2008	2009	2010
<i>Internet Overlap</i>			
0-24%	1414 (32.0%)	1452 (32.9%)	1553 (35.1%)
25-100%	15 (7.1%)	136 (64.2%)	61 (28.8%)

Table 3.7 displays the number and percentages of assignments categorized by Turnitin as having overlap from student papers. A chi square test for independence was conducted to determine whether there was a relationship between assignment types (year) and percentage of student paper overlap, that is, whether the distribution of overlap from student papers differed over the categories of assignment types using $p < .05$ level of significance. Results of this analysis indicated no significant relationship between the variables due to the low frequencies. However, these data indicate a greater concentration of 0% overlap in 2008, then greater concentrations of the higher percentages in 2009 and 2010, until the 100%, where the years are more balanced (2009 twice as high as 2010 with 2008 in the middle). Due to the low frequencies in the 25-100% range, a second chi square analysis was conducted using collapsed categories comparing the 0-24% categories to anything greater than that (25-100%), using $p < .05$ level of significance. Results indicated a significant relationship between these variables, $\chi^2(2) = 166.40$, $p = .001$ (see Table 3.8).

Table 3.7

Cross-Tabulations for Percent of Student Paper Overlap by Assignment Type (Year)

	Assignment Type (Year)		
	2008	2009	2010
<i>Student Paper Overlap</i>			
0%	950 (44.9%)	606 (28.6%)	561 (26.5%)
1-24%	372 (21.8%)	688 (40.3%)	647 (37.9%)
25-49%	43 (7.9%)	176 (32.2%)	327 (59.9%)
50-74%	6 (7.3%)	40 (48.8%)	36 (43.9%)
75-99%	2 (8.7%)	10 (43.5%)	11 (47.8%)
100%	56 (35.9%)	68 (43.6%)	32 (20.5%)

Table 3.8

Cross-Tabulations for Percent of Student Paper Overlap by Assignment Type (Year): 0-24% vs. 25-100%

	Assignment Type (Year)		
	2008	2009	2010
<i>Student Paper Overlap</i>			
0-24%	1322 (34.6%)	1294 (33.8%)	1208 (31.6%)
25-100%	107 (13.3%)	294 (36.4%)	406 (50.3%)

Discussion

This research was designed to fill a void in the plagiarism prevention literature. The design was to generate empirical data on the frequency, type and extent of plagiarism in different types of assignments, based on numerical and statistical analysis, rather than student self-reports.

In assignments where students were asked their opinions of designated concepts, the use of the Turnitin plagiarism detection system showed that two thirds of them did not have overlap to any extent; however, four percent were found to have 100% matched material from another student. When students were given randomized critical thinking questions and asked to reference the textbook, overlap scores increased, with approximately one-third showing zero overlap. However, when incorporating the 1-24% category to incorporate the textbook referencing, 78% of the students would not be considered plagiarizers. Four percent of the students completing the randomized critical thinking assignments copied verbatim from another student. Assignments consisting of critical thinking and application of content with textbook referencing were similar to the overlap scores of the randomized critical thinking questions assignment, with one third not showing an overlap and 75% in the 0-24% range. Two percent of students completing this type of assignment had an overlap for the entire assignment (100%). Therefore, one can infer from the results of this study that asking students to think critically may lower the incidence of overlap scores on weekly assignments. Although the research did not support the hypothesis that requiring critical thinking and personal involvement with the content would generate lower levels of plagiarism overall, it did support that the strategy lowered rates of verbatim plagiarism.

This study addressed some of the questions about frequency, nature, and extent of student plagiarism in different types of assignments. But no claim is made for generalizability of findings, given the differences of assignment strategies, curricula, and collegiate cultures. It is hoped, however, that the findings will provide faculty with comparable, empirical data, which may assist with course design in the contemporary university setting. Future research would benefit from similar study using different course design strategies and different populations.

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CHAPTER IV:

TURNITIN SYSTEMS: A DETERRENT?

Introduction

Plagiarism for the purposes of this research is defined as “the action or practice of taking someone else’s work, idea, etc, and passing it off as one’s own; literary theft” (OED Online, 2011). Observers often link increases in academic misconduct, particularly plagiarism, to students’ increasing reliance on Internet sources to complete their work (Briggs, 2008; Dee & Jacob, 2010; Ma, Wan, & Lu, 2008; Walker, 2010). They noted that in the past plagiarism required a lot of work: going to the library, searching, reading and copying. However, a paper can now be put together by using online or digital sources within a minute amount of time (Batane, 2010; Scanlon, 2003; Tackett, Claypool, Wolf, & Antenucci, 2010). In short, computer technology and the internet now make plagiarism an easy enterprise. A major implication of this state of affairs is that faculty will need to be more diligent in their efforts to mitigate the practice, especially those educating large numbers of students (Ledwith, 2008).

Research and discussion of the topic yield a variety of suggestions on how to stem the tide of cheating, with mixed conclusions on the effectiveness of fear of punishment as a deterrent. These range from finding that even the most explicit warnings of punishment fail to discourage plagiarism (Braumoeller & Gaines, 2001) to only a slightly negative effect on the inclination to engage in academic dishonesty (e.g., Haines, Diekoff, LaBeff, & Clark, 1986; Smyth & Davis, 2003).

On the other hand, others found that informing students that their work would be run through a plagiarism detection system was a highly effective deterrent (Atkinson & Yeoh, 2008; Baker, Thornton, & Adams, 2008; Badge & Scott, 2009; Chaudhuri, 2008; Maslen, 2003; Tackett et al., 2010). Walker (2010) reported a five-year study at a New Zealand university. The goal was to determine the extent and type of plagiarism in two assignments in a 569-student second-year business class using Turnitin plagiarism detection system. Over a quarter of assignments submitted contained plagiarism, and students indeed tended to alter their behavior from one assignment to the next when made aware of plagiarism in the first assignment. However, these findings were unable to definitively separate the use of Turnitin as an educational tool (i.e., the students learned what plagiarism was) versus being a deterrent out of fear of being caught. Yet, as Ledwirth, Risquez and O'Dwyer (2010) assert, detection and fear of punishment, logically at least, should prove to be serious disincentive.

Thus, the primary objective of this research was to determine whether or not using the Turnitin detection system *solely as a detection tool* would serve as a deterrent. What further distinguishes this effort from past research was the testing of the system as a disincentive in large introductory classes.

Literature Review

By most accounts, instances of academic misconduct in higher education are high and increasing. A study of a sample of 5,000 students from 99 colleges and universities in the United States revealed that three-fourths reported being engaged in some form of academic dishonesty (Bowers, 1964). However, the evidence suggests an increasing prevalence of cheating in the past few decades, particularly plagiarism (McCabe, 2001; MacDonald & Carroll, 2006; Bernardi, Baca, Landers, & Witek, 2008). Authorities observe that with greater reliance on Internet

sources, there have been corresponding increases in copying without proper referencing, unacknowledged collusion, and the use of online paper writing services (Briggs, 2008; Dee & Jacob, 2010; Ma et al., 2008; Stuber-McEwen, Wisely, & Hoggart, 2009; Walker, 2010).

Most researchers conclude that digital plagiarism, Internet or computer-driven copying without attribution, is rampant (e.g., Ashworth, Bannister & Thorne, 1997; Macdonald & Carroll, 2006; Walker, 2010; Willhoit, 1994) and has been for some time. Several studies indicate this form of plagiarizing has surpassed conventional forms of plagiarizing from classmates or printed material (Butakov & Scherbini, 2009; Stephens, Young & Calabrese, 2007; Tackett et al., 2010). Thus, a strong case can be made that in contemporary higher education settings most plagiarism is digital or internet-derived.

Contributing Factors

A significant issue in digital plagiarism is different perceptions of students as to what constitutes cheating. In one study, almost 25% of 698 students self reported that they went online and cut and pasted text without proper referencing (Scanlon & Neumann, 2002). Yet Baker, Thornton, and Adams (2008) found that although 90% of the students they surveyed admitted to some kind of cheating, they did not perceive digital plagiarizing as cheating or academic dishonesty. Other researchers report similar results (Baker, Berry & Thornton, 2008; Tackett, et al., 2010; Dee & Jacob, 2010). Baker et al. (2008) summarized from their earlier work:

Students do not believe that copy-and-paste plagiarism when using computer technologies, is as serious an issue as copying from literature without citing, when computer technologies are not used. An evaluation of student attitudes towards cheating revealed that 73% of students consider academic integrity violations such as fabricating a reference list, failing to list all sources in a reference list, falsifying lab results or research data, or misquoting a source intentionally to be more serious. (p. 1)

A primary explanation of the correlation between the rise of the Internet and plagiarism is that taking another's work or using it without attribution now requires much less effort. Duggan, (2006), Evans (2006), Maurer, Kappa, and Zaka (2006), and Thompson (2006) all concluded that the development of computer and Internet technology, with its instant access to information, the ease of cut-and-paste technology and potential anonymity of behavior, create an easy climate for plagiarism. A paper can now be put together within a short period of time from any location using online or digital sources (Batane, 2010; Scanlon, 2003; Tackett et al., 2010). Scanlon (2003) observed that internet technology "makes illicit cutting and pasting so easy as to be nearly irresistible" (p. 161) and Scurrah (2001) described the internet climate as having a "free-ranging intimacy" that can appear as "a Platonic commons from which information can be cherry-picked at will" (p. 10).

Lack of commitment by faculty to counter plagiarism is another factor contributing to the practice and is particularly relevant to this research's focus. Though authorities agree that better monitoring could possibly reduce the propensity to cheat, some also noted, "most professors do not want the aggravation" (Ameen, Guffey, & McMillian, 1996, p. 202) or have too many students to undertake such a task. Callahan (2007) asserted that faculty and university officials

...have direct incentives to ignore the issue of academic integrity . . . [They] are deterred from assuming this responsibility because time spent safeguarding the academic integrity of the learning environment is not a career-building activity generally valued by administration and it likely involves stressful interaction with students. For campus administrators who are recognized for their ability to tout the excellence of their programs and attract funding, addressing student cheating may appear to be a lose-lose situation. (p. 315)

Studies also indicated that where students perceive instructors to be vigilant and fair, the students were less likely to cheat (Bernardi & Adamaitis, 2006; Faucher & Caves, 2009; Genereux & McLeod, 1995; Lemons, Martin, & Seaton, 2011; Ledwith & Risquez, 2008;

Milliron & Sandoe, 2008). In the face of such student attitudes, Keith-Spiegel, Tabachnick, Whitley and Washburn (1998) found that 91% of the students sampled believed that ignoring of academic misconduct by faculty was unethical. Thus, in the contemporary university of large classrooms, anonymity of behavior and online instruction, faculty should utilize digital ways to deter the practice instead of just trying to monitor student behavior. One researcher went so far as to say, “Any faculty members who fail to utilize plagiarism detection engines...are inviting above average levels of cheating” (Tackett et al., 2010, p. 79).

Plagiarism Detection Technology

The development of a variety of electronic detection plagiarism systems has spawned a number of reviews of their effectiveness and efficacy (e.g., Briggs, 2008; Bull, Colins, Coughlin, Sharp & Square, 2001; Maurer, et al., 2006; McKeever, 2006; Purdy, 2005, Weber-Wulff, 2008). These tools are generally evaluated in educational settings in two ways: “...in detecting non-original text in a piece of writing and...the effect they have on the actions of students” (Badge & Scott, 2009, p. 2). While the latter issue is the primary focus of this research, the issue of technical effectiveness, of course, is critical to the very credibility of using the instrument in higher education and research. In one of the most influential studies, as far as policy, Bull and associates (2001) tested the accuracy of five different electronic plagiarism detection systems: Turnitin, EVE, Copycatch, Findsome and Wordcheck. The detection systems were rated on how effectively they discovered non-attributed text matches, even though direct comparison was problematic since they operated within different parameters. Although Copycatch rated the highest in student-student collusion detection, Turnitin was the only one that checked for student-student collusion, copying from writing sites and the internet in one application. This

empirical study eventually produced the often-cited *Good Practice Guide to Plagiarism* (Carroll & Appleton, 2001).

More recently, Weber-Wulff (2007) completed the most thorough and extensive testing of 16 plagiarism detection systems to date. The analysis was based on usability, efficacy to detect different types of plagiarism, and language translations. Copyscape was top performing in regard to accuracy of detection but designed primarily to check the originality of web pages. The system has not been widely used in education, since it is not considered a practical option for checking student assignments. Plagiarism Detector was also highly rated but often carries a Trojan virus as a component in its installation. Even though SafeAssign ranked slightly above the system used in this research, Turnitin, it was primarily due to its ability to translate German and its lower level of noise while source matching (Badge & Scott, 2009).

Consequently, Turnitin is currently the most globally utilized plagiarism detection system in education (Badge & Scott, 2009; Batane, 2010; Butakov & Scherbinin, 2009). The United Kingdom purchased a national license for Turnitin systems for 2002-03. Now, 95% of higher education institutions use the systems in that country (Rowlands et al., 2008). Worldwide use is estimated to be 10 million users in 100 countries (iParadigms, 2011).

Though not all studies support the accuracy and effectiveness of text-matching systems (e.g., Evans, 2006; Kaner & Fielder, 2008; Lukashenko, Graudina & Grundspenkis, 2007; Potthast, Stein, Barron-Cedefio & Rosso, 2010) a large body of evidence suggests that Turnitin is the most effective tool in detecting plagiarism (Badge & Scott, 2009; Baker et al., 2008; Barrett & Malcolm, 2006; Batane, 2010; Briggs, 2008; Chaudhuri, 2008; Dahl, 2007; Davis & Carroll, 2009; Heikes & Kucsera, 2008; Ledwith & Rusquez, 2008; Maurer et al., 2006; Milliron

& Sandoe, 2008; Ogilvie & Stewart, 2010; Rees & Emerson, 2009; Tackett et al., 2010; Walker, 2010) and invaluable in higher education.

Plagiarism research in higher education has largely concentrated on *self-reporting*, rather than actual plagiarism prevalence (e.g., Hawley, 1984; Rakovski & Levy, 2007; Scanlon & Neumann, 2002). Wide discrepancies between what respondents report as their own behavior and what may be true, as well as what their peers are perceived to do, casts doubt on the accuracy of self-reporting (Newstead, Franklyn-Stokes & Armstead, 1996; Pickard, 2005). For example, Martin, Rao, and Sloan (2009) found that the instances of plagiarism were actually higher than students were willing to admit in self-report surveys. Consequently, plagiarism detection systems offer educational research a direct *empirical measurement* of the behavior, rather than speculation based on hearsay (Scanlon, 2003).

However, the employment of plagiarism detection systems in higher education carries at least two limitations. First, if work is properly cited as someone else's, this is not plagiarism. Yet, the system does not take into account these citations unless they are in quotation marks and this option is utilized by the instructor. Results are actually non-originality scores, rather than plagiarism, and any work that has extensive quotations or close paraphrasing will show a high score. Non-originality reports, regardless of the system used, should be considered only as rough guides (Atkinson & Yeoh, 2008; Goddard & Rudzki, 2005); since these simply detect non-original text (text that matches to another source). Therefore, academic judgment is required to make the decision as to whether or not classifying the non-original text as plagiarism is appropriate (Goddard & Rudzki, 2005; Mulcahy & Goodacre, 2004). For instructors who work with larger groups of undergraduates, this is time-consuming and problematic.

A second limitation is that detection systems' databases exclude journals and other publications that have limited access or are not on the World Wide Web. Lack of access to these publications is a primary concern and well documented (Atkinson & Yeoh, 2008; Maurer et al., 2006; Warn, 2006). To minimize this limitation, Turnitin accessed indexing and abstracting services in 2009 (Badge & Scott, 2009), although direct access is still lacking for many publications.

The other criterion for evaluation of detection systems is whether or not it can be used to *deter* plagiarism. Evidence suggests that students are concerned about inadvertent plagiarism (Dahl, 2007; Martin, Stubbs & Troop, 2006); so, many detection systems are now available to students directly (Badge & Scott, 2009). Many institutional implemented systems also allow students to view their reports, discuss them with faculty and resubmit the corrected work (Barrett & Malcolm, 2006; Ledwith & Rasquez, 2008). Thus, on the positive side, electronic plagiarism detection systems have helped improve students' writing skills and prevent plagiarizing (Davis & Carroll, 2009; Ledwith & Rasquez, 2008; Tackett, 2010). It is noteworthy, that while faculty understand the value of using this system in accordance with direct one-on-one feedback to improve student academic skills many are not able to provide such support (Ledwith, 2008).

On the negative side of detection systems as a deterrent, is the threat of being caught plagiarizing and being punished accordingly. Although there has been much discussion in the literature about the deterrent effect of implementing detection systems (Bennett, 2005; Sutherland-Smith & Carr, 2005), little empirical work has been done to demonstrate their effectiveness. Since electronic detection is often the first objective measure of plagiarism, there is a shortage of base line data on the prevalence of plagiarism for comparison post-implementation (Badge & Scott, 2009; Duggan, 2006). Walker (2010) concluded that

“Logic...dictates that the use of plagiarism detection systems should have a deterrent effect on plagiarism (citing Ledwith & Risquez, 2008), as the knowledge that is being used to identify plagiarists should in theory act as a massive disincentive” (p. 43). This dimension is the focus of the research—specifically; to what extent using plagiarism detection systems for student submissions mitigates the practice.

The Case for Turnitin

iParadigms’ Turnitin system was introduced in 1997. As in the case of other detection systems, its use in academic institutions around the world over the past 14 years has been in response to the phenomenal rise of digital plagiarism, realization that honor codes without effective misconduct detection systems do not work (e.g., Bertram-Gallant, 2008) and that more comprehensive efforts than in the past are required to mitigate cheating associated with computer and Internet technology (e.g., Carroll & Duggan, 2005). iParadigm’s massive databases include an archive of all the papers previously submitted to Turnitin (over 130 million) plus content from millions of websites (over 13 billion pages), academic publications, online encyclopedias, news agencies and other sources likely to be used for plagiarism (iParadigms, 2011). As is the case with other detection systems, Turnitin compares the writer’s sentences with its databases to provide a non-originality score, a percentage linked to an identified source, so the investigator can compare the original work with the reproduced material (Walker, 2010). Unlike many other detection systems, Turnitin compares not only student-student collusion but also to many outside sources.

The Present Study

Impetus for this research grows out of literature pointing to an escalating trend in digital plagiarism and the use of detection systems to mitigate it. Specific research questions were

- 1) How prevalent is plagiarism (non-original work) in large introductory classes when a plagiarism detection system *is not used* for submissions;
- 2) How prevalent is plagiarism (non-original work) in large introductory courses when a plagiarism detection system *is used* for assignment submissions;
- 3) Does the prevalence of plagiarism (non-original work) vary in terms of gender, class standing, and major; and
- 4) Can using plagiarism detection systems for student submissions reduce its prevalence?

Methodology

Sample

The researcher used secondary data of Turnitin originality scores collected and available from two previous semesters of Introduction to Sociology courses taught by the same instructor at a southern university. During the Fall 2010 semester, 997 students completed the course, and in the Spring 2011 semester, 537 students completed the course. The Fall 2010 class was comprised of 496 freshman, 299 sophomores, 126 juniors, 70 seniors, and six graduate students; of these 390 were male and 607 were female. The Spring 2011 class was comprised of 263 freshman, 66 sophomores, 108 juniors, 100 seniors, and three graduate students, with 202 being male and 335 being female.

Since Fall 2010 consisted of nine sections and Spring 2011 consisted of four sections, a randomized sample was used in the selection of sections. Sections were chosen using a randomized number table. Four sections were chosen from the Fall 2010 semester, and three sections were chosen from the Spring 2011 semester, rendering 360 cases in Fall 2010 and 304 cases in Spring 2011. The Fall 2010 sample consisted of 206 males and 164 females, 49% of

whom were freshmen, 28% were sophomores, 16% were juniors, 7% were seniors, and less than 1% were graduate students. The Spring 2011 sample consisted of 191 males and 113 females, 44% of whom were freshmen, 18% were sophomores, 17% were juniors, 20% were seniors, and less than 1% were graduate students. Both semesters were similar in terms of college of major with arts and sciences making up approximately 30% per semester and business making up about 18% per semester.

Procedure

The Institutional Review Board of the study university approved the study. Students were enrolled in an Introduction to Sociology undergraduate course. Identical instruction of the academic integrity policy of the university (no changes to the policy were made during the study) was provided in the syllabi of all classes. In the Fall 2010 semester, the instructor submitted the papers to the detection system at the completion of the semester. Students were not aware that this was done. In the Spring 2011 semester, students were required to submit work to the instructor through the Turnitin plagiarism detection system; thus, they were aware that the detection system was used. For this study, the same chapter assignments were used from both semesters. Assignments required application of textbook material to a sociological issue. Textbook referencing was required.

Measure

The researcher relied on Turnitin to analyze the submitted assignments. For each paper, a similarity, or overlap, score identifies the percentage of submitted text that matches their continually updated database. Turnitin uses percentage groupings of 0-24%, 25-49%, 50-74%, and 75-100% for quick comparison. However, for the purpose of this study, the exact percentages were utilized to better analyze the data. The higher overlap score infers more

plagiarism. An average percentage of overlapped material across three assignments for the semester was calculated and compared across groups.

Analyses

Analyses were performed using SPSS for Windows Version 19. Means and standard deviations were used to describe the data. Analysis of variance at the $p < .05$ level of significance was conducted to determine whether there were significant differences in average percentage of plagiarized material across gender, class standing, and college major. Independent sample t tests were run at the $p < .05$ level of significance to determine whether there were significant differences in plagiarism between the two semesters, that is whether plagiarism was more prevalent in classes where students were unaware of the detection system being used than in classes where it was known to be used.

Findings

Table 4.1 displays the descriptive statistics of prevalence of plagiarism when students were unaware of Turnitin being used to evaluate assignments for plagiarism. Average plagiarism rates across the three assignments were calculated and reported. Results indicated that in classes where students were unaware of the plagiarism detection system being used, student assignments ranged from 0% to 76% overall overlap, with a mean of 16.55% ($SD = 16.97$). Results indicated that the largest source used to plagiarize was from other students; student overlap ranged from 0% to 76%, with a mean of 16.33% ($SD = 16.92$). Internet as a plagiarism source ranged from 0% to 48.67% overlap, with a mean of 5.43% ($SD = 7.44$). Publications as a plagiarism source ranged from 0% to 6.67% overlap, with a mean of 0.33% ($SD = 1.10$).

Table 4.1

Descriptive Statistics for Prevalence of Plagiarism (Percentage Overlap Averaged Across Three Assignments) When Students Are Unaware of Plagiarism Detection Systems

Plagiarism Source	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Internet	0.00	48.67	5.43	7.44
Publication	0.00	6.67	0.33	1.10
Student	0.00	76.00	16.33	16.92
Overall	0.00	76.00	16.55	16.97

Table 4.2 displays the descriptive statistics of prevalence of plagiarism when students were aware of Turnitin being used to evaluate assignments for plagiarism. Average plagiarism rates across the three assignments were calculated and reported. Results indicated that in classes where students were aware of a plagiarism detection system being used, student assignments ranged from 0% to 48.67% overall overlap, with a mean of 9.76% ($SD = 8.93$). Results indicated that the largest source used to plagiarize was from other students, with an average plagiarism rate of 9.34% ($SD = 8.8$) within a range from 0% to 48.33%. Internet as a plagiarism source ranged from 0% to 32.67% overlap, with a mean of 4.36% ($SD = 5.03$). Publications as a plagiarism source ranged from 0% to 18% overlap, with a mean of 0.54% ($SD = 1.56$).

Table 4.2

Descriptive Statistics for Prevalence of Plagiarism (Percentage Overlap Averaged Across Three Assignments) When Students Are Aware of Plagiarism Detection Systems

Plagiarism Source	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
Internet	0.00	32.67	4.36	5.03
Publication	0.00	18.00	0.54	1.56
Student	0.00	48.33	9.34	8.80
Overall	0.00	48.67	9.76	8.93

Table 4.3 displays plagiarism averaged across the three assignments as a function of gender for the total sample. A series of analyses of variance was conducted to determine whether there were significant differences in percentage of overlap (overall, Internet, publication, and student) across gender for the total sample. The independent variable was gender. The dependent variable was the percentage of overlap (separately for each source). For overall overlap, Levene’s test for homogeneity of variance was not significant, indicating that this assumption was not violated. Results indicated significant differences between genders in percentage of overall overlap, $F(1, 662) = 5.59, p = .02$. Males ($M = 14.51, SD = 14.09$) had higher percentages of overall overlap than did females ($M = 11.85, SD = 14.43$). For Internet overlap, Levene’s test for homogeneity of variance was not significant, indicating that this assumption was not violated. Results indicated significant differences between genders in percentage of Internet overlap, $F(1, 662) = 6.57, p = .01$. Males ($M = 5.46, SD = 6.91$) had higher percentages of Internet overlap than did females ($M = 4.16, SD = 5.67$). For publication overlap, Levene’s test for homogeneity of variance was significant, indicating that this assumption was violated. As such, results should be interpreted with caution. Results indicated no significant

differences between genders in percentage of publication overlap, $F(1, 662) = 1.55, p = .21$. For student overlap, Levene's test for homogeneity of variance was not significant, indicating that this assumption was not violated. Results indicated significant differences between genders in percentage of student overlap, $F(1, 662) = 5.16, p = .02$. Males ($M = 14.15, SD = 14.02$) had higher percentages of student overlap than did females ($M = 11.60, SD = 14.44$).

Table 4.3

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Gender:

Total Sample

<i>Plagiarism Source / Gender</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Overall</i>			5.59	.02*
Male	14.51	14.09		
Female	11.85	14.43		
<i>Internet</i>			6.57	.01*
Male	5.46	6.91		
Female	4.16	5.67		
<i>Publication</i>			1.55	.21
Male	0.48	1.47		
Female	0.35	1.09		
<i>Student</i>			5.16	.02*
Male	14.15	14.02		
Female	11.60	14.44		

* denotes significant p value ($p < .05$).

Table 4.4 displays plagiarism across the three assignments as a function of class standing for the total sample. A series of analyses of variance was conducted to determine whether there were significant differences in percentage of overlap (overall, Internet, publication, and student) across class standing for the total sample. The independent variable, class standing, included five

levels, freshmen, sophomore, junior, senior, and graduate. The dependent variable was percentage of overlap (separately for each source). For overall overlap, Levene's test for homogeneity of variance was not significant, indicating that this assumption was not violated. Results indicated no significant differences between class standings in percentage of overall overlap, $F(4, 659) = 1.15, p = .33$. For Internet overlap, Levene's test for homogeneity of variance was significant, indicating that this assumption was violated; as such, these results should be interpreted with caution. Results indicated: no significant differences between class standings in percentage of Internet overlap, $F(4, 659) = 1.40, p = .23$. For publication overlap, Levene's test for homogeneity of variance was significant, indicating that this assumption was violated; as such, these results should be interpreted with caution. Results indicated no significant differences between class standings in percentage of publication overlap, $F(4, 659) = 1.15, p = .33$. For student overlap, Levene's test for homogeneity of variance was not significant, indicating that this assumption was not violated. Results indicated no significant differences between class standings in percentage of student overlap, $F(4, 659) = 1.08, p = .37$.

Table 4.4

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Class:

Total Sample

<i>Plagiarism Source / Class</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Overall</i>			1.15	.33
Freshman	13.01	14.25		
Sophomore	14.56	16.17		
Junior	14.92	12.87		
Senior	11.22	12.21		
Graduate	11.33	14.99		
<i>Internet</i>			1.40	.23
Freshman	5.49	6.29		
Sophomore	5.14	6.91		
Junior	6.08	6.98		
Senior	4.51	5.58		
Graduate	2.40	3.29		
<i>Publication</i>			1.15	.33
Freshman	0.41	1.42		
Sophomore	0.33	1.05		
Junior	0.66	1.59		
Senior	0.36	1.07		
Graduate	0.60	1.34		
<i>Student</i>			1.08	.37
Freshman	12.70	14.16		
Sophomore	14.29	16.17		
Junior	14.47	12.91		
Senior	10.98	12.18		
Graduate	11.33	14.99		

Table 4.5 displays plagiarism across the three assignments as a function of college major for the total sample. A series of analyses of variance with Tukey's post-hoc analysis was conducted to determine whether there were significant differences in percentage of overlap (overall, Internet, publication, and student) across college major for the total sample. The

independent variable, college major, included eight levels: Arts & Science, Business, Computer Science, Education, Engineering, Human Environmental Science, Social Work, and Nursing.

The dependent variable was percentage of overlap (separately for each source).

Results indicated significant differences between college majors in percentage of publication overlap, $F(7, 656) = 2.03, p = .05$. Social Work ($M = 1.10, SD = 1.92$) had higher percentages of publication overlap than did A& S ($M = .27, SD = .94$), Business ($M = .40, SD = 1.08$), Computer Science ($M = .24, SD = .80$), Education ($M = .50, SD = 2.36$), Engineering ($M = .29, SD = .72$), HES ($M = .67, SD = 1.34$) and Nursing ($M = .65, SD = 1.76$). Results indicated no significant differences between college majors in percentage of overall overlap, $F(7, 656) = .61, p = .75$; no significant differences between college majors in percentage of Internet overlap, $F(7, 656) = .68, p = .69$; and no significant differences between college majors in percentage of student overlap, $F(7, 656) = .54, p = .80$.

Table 4.5

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of College Major: Total Sample

<i>Plagiarism Source / Major</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Overall</i>			0.61	.75
A & S	12.46	13.89		
Business	13.76	14.95		
Computer science	13.62	12.62		
Education	15.37	15.34		
Engineering	11.13	11.08		
HES	14.35	16.00		
Social work	16.48	13.91		
Nursing	13.45	14.64		
<i>Internet</i>			0.68	.69
A & S	4.74	6.58		
Business	4.83	6.08		

Table 4.5 (cont)

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of College Major: Total Sample

<i>Plagiarism Source / Major</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Computer science	6.21	7.95		
Education	5.48	6.29		
Engineering	4.44	6.00		
HES	4.35	4.99		
Social work	5.92	5.71		
Nursing	4.72	7.18		
<i>Publication</i>			2.03	.05*
A & S	0.27	0.94		
Business	0.40	1.08		
Computer science	0.24	0.80		
Education	0.50	2.36		
Engineering	0.29	0.72		
HES	0.67	1.34		
Social work	1.10	1.92		
Nursing	0.66	1.76		
<i>Student</i>			0.54	.80
A & S	12.25	13.83		
Business	13.29	14.95		
Computer science	13.34	12.54		
Education	14.68	15.26		
English	10.78	10.91		
HES	14.03	16.01		
Social work	16.35	13.99		
Nursing	13.36	14.63		

* denotes significant *p* value ($p < .05$).

Table 4.6 displays plagiarism averaged across the three assignments as a function of gender for the Fall 2010 subsample. A series of analyses of variance was conducted to determine whether there were significant differences in percentage of overlap (overall, Internet, publication, and student) across gender for the Fall 2010 subsample. The independent variable

was gender. The dependent variable was percentage of overlap (separately for each source). Results indicated: no significant differences between genders in percentage of overall overlap, $F(1, 358) = 2.90, p = .09$; no significant differences between genders in percentage of Internet overlap, $F(1,358) = 3.45, p = .06$; no significant differences between genders in percentage of publication overlap, $F(1, 358) = 1.09, p = .30$; and no significant differences between genders in percentage of student overlap, $F(1,358) = 2.39, p = .12$. For publication, Levene's test for homogeneity of variance was significant indicating this assumption was violated. As such, these results should be interpreted with caution.

Table 4.6

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Gender: Fall 2010 Subsample

<i>Plagiarism Source / Gender</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Overall</i>			2.90	.09
Male	17.86	16.89		
Female	14.79	16.97		
<i>Internet</i>			3.45	.06
Male	6.06	8.22		
Female	4.59	6.18		
<i>Publication</i>			1.09	.30
Male	0.38	1.12		
Female	0.26	1.06		
<i>Student</i>			2.39	.12
Male	17.52	16.83		
Female	14.74	16.97		

* denotes significant *p* value ($p < .05$).

Table 4.7 displays plagiarism across the three assignments as a function of class standing for the Fall 2010 subsample. A series of analyses of variance was conducted to determine whether there were significant differences in percentage of overlap (overall, Internet, publication, and student) across class standing for the Fall 2010 subsample. The independent variable, class standing, included five levels, freshmen, sophomore, junior, senior, and graduate. The dependent variable was percentage of overlap (separately for each source). Results indicated: no significant differences between class standing and overall overlap, $F(4, 355) = .64, p = .64$; no significant differences between class standing of percentage of Internet overlap, $F(4,355) = 1.08, p = .37$; no significant differences between class standing of percentage of publication overlap, $F(4, 355) = 1.67, p = .16$; and no significant differences between class standing of percentage of student overlap, $F(4,355) = .67, p = .61$. For publication, Levene's test for homogeneity of variance was significant indicating this assumption was violated. As such, these results should be interpreted with caution.

Table 4.7

*Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Class:
Fall 2010 Subsample*

<i>Plagiarism Source / Class</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Overall</i>			0.64	.64
Freshman	15.37	17.19		
Sophomore	17.85	18.13		
Junior	18.53	14.52		
Senior	15.67	15.96		
Graduate	11.33	19.63		
<i>Internet</i>			1.08	.37
Freshman	4.81	7.58		
Sophomore	5.56	7.52		
Junior	6.98	7.00		
Senior	6.04	7.20		
Graduate	2.67	4.62		
<i>Publication</i>			1.67	.16
Freshman	0.29	0.97		
Sophomore	0.20	0.90		
Junior	0.63	1.51		
Senior	0.47	1.47		
Graduate	0.00	0.00		
<i>Student</i>			0.67	.61
Freshman	15.10	17.08		
Sophomore	17.76	18.12		
Junior	18.26	14.54		
Senior	15.48	16.02		
Graduate	11.33	19.63		

* denotes significant p value ($p < .05$).

Table 4.8 displays plagiarism across the three assignments as a function of college major for the Fall 2010 subsample. A series of analyses of variance was conducted to determine whether there were significant differences in percentage of overlap (overall, Internet, publication, and student) across college major for the Fall 2010 subsample. The independent variable,

college major, included eight levels, Arts & Science, Business, Computer Science, Education, Engineering, Human Environmental Science, Social Work, and Nursing. The dependent variable was percentage of overlap (separately for each source). For overall, Levene's test of homogeneity of variance was not significant, indicating that this assumption was not violated. Results indicated no significant differences between college major of overall overlap, $F(7, 352) = .68, p = .69$. For Internet overlap, Levene's test of homogeneity of variance was not significant, indicating that this assumption was not violated. Results indicated no significant differences between college majors for percentage of Internet overlap, $F(7,352) = .97, p = .45$. For student overlap, Levene's test of homogeneity of variance was not significant, indicating that this assumption was not violated. Results indicated no significant differences between college majors for percentage of student overlap, $F(7,352) = .64, p = .73$. For publication overlap, Levene's test for homogeneity of variance was significant, indicating that this assumption was violated. As such, results should be interpreted with caution. A significant difference was found between college majors in the percentage of publication overlap, $F(7, 352) = 2.71, p = .01$. Social Work majors ($M = 1.40, SD = 2.16$) had higher percentages of publication overlap than did A&S majors ($M = .29, SD = 1.03$), Business majors ($M = .26, SD = .99$), Computer Science majors ($M = .17, SD = .71$), Education majors ($M = .12, SD = .58$), Engineering majors ($M = .09, SD = .42$), or Nursing majors ($M = .53, SD = 1.66$). HES majors ($M = .67, SD = 1.24$) were not different from any other group.

Table 4.8

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of College Major: Fall 2010 Subsample

<i>Plagiarism Source / Major</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Overall</i>			0.68	.69
A & S	15.11	16.16		
Business	16.94	17.34		
Computer science	18.25	14.78		
Education	18.50	18.79		
Engineering	11.84	13.17		
HES	19.52	20.38		
Social work	17.40	13.38		
Nursing	16.34	18.24		
<i>Internet</i>			0.97	.45
A & S	5.16	7.45		
Business	5.75	6.90		
Computer science	7.79	10.23		
Education	5.98	7.21		
Engineering	3.68	6.52		
HES	3.99	5.41		
Social work	5.70	5.29		
Nursing	5.71	8.69		
<i>Publication</i>			2.71	.01*
A & S	0.26	1.03		
Business	0.26	0.99		
Computer science	0.17	0.71		
Education	0.12	0.58		
Engineering	0.09	0.42		
HES	0.67	1.24		
Social work	1.40	2.16		
Nursing	0.53	1.66		
<i>Student</i>			0.64	.73
A & S	15.00	16.06		
Business	16.65	17.31		
Computer science	18.05	14.76		
Education	17.66	18.79		

Table 4.8 (cont)

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of College Major: Fall 2010 Subsample

<i>Plagiarism Source / Major</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
English	11.68	13.08		
HES	19.42	20.38		
Social work	17.40	13.38		
Nursing	16.28	18.26		

* denotes significant *p* value ($p < .05$).

Table 4.9 displays plagiarism averaged across the three assignments as a function of gender for the Spring 2011 subsample. A series of analyses of variance was conducted to determine whether there were significant differences in percentage of overlap (overall, Internet, publication, and student) across gender for the Spring 2011 subsample. The independent variable was gender. The dependent variable was percentage of overlap (separately for each source). For overall overlap, Levene's test for homogeneity of variance was not significant, indicating that this assumption was not violated. Results indicated significant difference between gender of overall overlap, $F(1, 309) = 8.55, p = .004$. Males ($M = 10.90, SD = 8.98$) had higher percentages of overall overlap than did females ($M = 7.84, SD = 8.55$). For Internet overlap, Levene's test for homogeneity of variance was not significant, indicating that the assumption was not violated. Results indicated a significant difference between genders for percentage of Internet overlap, $F(1, 302) = 4.49, p = .04$. Males ($M = 4.83, SD = 5.09$) had higher percentages of Internet overlap than did females ($M = 3.57, SD = 4.84$). For student overlap, Levene's test for homogeneity of variance was not significant, indicating that the assumption was not violated.

Results indicated a significant difference between genders for percentage of student overlap, $F(1, 302) = 9.60, p = .002$. Males ($M = 10.52, SD = 8.87$) had higher percentages of student overlap than did females ($M = 7.33, SD = 8.34$). For publication overlap, Levene's test for homogeneity of variance was not significant, indicating that the assumption was not violated. Results indicated no significant difference between genders for percentage of student overlap, $F(1, 302) = .39, p = .53$.

Table 4.9

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Gender: Spring 2011 Subsample

<i>Plagiarism Source / Gender</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Overall</i>			8.55	.004*
Male	10.90	8.98		
Female	7.84	8.55		
<i>Internet</i>			4.49	.04*
Male	4.83	5.09		
Female	3.57	4.84		
<i>Publication</i>			0.39	.53
Male	0.58	1.76		
Female	0.47	1.13		
<i>Student</i>			9.60	.002*
Male	10.52	8.87		
Female	7.33	8.34		

* denotes significant p value ($p < .05$).

Table 4.10 displays plagiarism across the three assignments as a function of class standing for the Spring 2011 subsample. A series of analyses of variance was conducted to determine whether there were significant differences in percentage of overlap (overall, Internet, publication, and student) across class standing for the Spring 2011 subsample. The independent

variable, class standing, included five levels, freshmen, sophomore, junior, senior, and graduate. The dependent variable was percentage of overlap (separately for each source). Results indicated no significant differences between class standing for percentage of overall overlap, $F(4, 299) = .59, p = .67$; no significant differences between class standing for percentage of Internet overlap, $F(4,299) = .54, p = .71$; no significant differences between class standing for percentage of publication overlap, $F(4, 299) = .62, p = .65$; and no significant differences between class standing for percentage of student overlap, $F(4,299) = .62, p = .65$. For Internet overlap, Levene's test of homogeneity of variance was significant, indicating that that this assumption was violated. As such, results should be interpreted with caution.

Table 4.10

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Class: Spring 2011 Subsample

<i>Plagiarism Source / Class</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Overall</i>			0.59	.67
Freshman	9.92	8.18		
Sophomore	8.48	9.10		
Junior	11.03	9.50		
Senior	9.40	9.89		
Graduate	11.33	11.31		
<i>Internet</i>			0.54	.71
Freshman	4.32	4.04		
Sophomore	4.37	5.59		
Junior	5.10	6.89		
Senior	3.88	4.69		
Graduate	2.00	0.47		
<i>Publication</i>			0.62	.65
Freshman	0.55	1.84		
Sophomore	0.57	1.24		
Junior	0.69	1.68		
Senior	0.32	0.86		
Graduate	1.50	2.12		
<i>Student</i>			0.62	.65
Freshman	9.57	8.08		
Sophomore	7.88	8.79		
Junior	10.40	9.43		
Senior	9.14	9.78		
Graduate	11.33	11.31		

* denotes significant *p* value ($p < .05$).

Table 4.11 displays plagiarism across the three assignments as a function of college major for the Spring 2011 subsample. A series of analyses of variance was conducted to determine whether there were significant differences in percentage of overlap (overall, internet, publication, and student) across college major for the Spring 2011 subsample. The independent

variable, college major, included eight levels, arts and science, business, computer science, education, engineering, human environmental science, social work, and nursing. The dependent variable was percentage of overlap per source. Results indicated no significant differences between college majors for percentage of overall overlap, $F(7, 296) = .92, p = .49$; no significant differences between class standing for percentage of Internet overlap, $F(7,296) = .75, p = .60$; no significant differences between class standing for percentage of publication overlap, $F(7, 296) = .94, p = .47$; and no significant differences between class standing for percentage of student overlap, $F(7,296) = 1.09, p = .37$. For overall, student, and publication overlap, Levene's test of homogeneity of variance was significant, indicating that that this assumption was violated. As such, results should be interpreted with caution.

Table 4.11

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of College Major: Spring 2011 Subsample

<i>Plagiarism Source / Major</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
<i>Overall</i>			0.92	.49
A & S	8.78	8.76		
Business	8.84	8.22		
Computer science	9.38	8.41		
Education	11.42	8.12		
English	10.16	7.66		
HES	9.18	6.93		
Social work	14.94	15.93		
Nursing	11.49	11.43		
<i>Internet</i>			0.60	.75
A & S	4.16	5.13		
Business	3.40	4.23		
Computer science	4.76	4.74		
Education	4.84	4.95		
Engineering	5.47	5.22		
HES	4.71	4.57		

Table 4.11 (cont)

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of College Major: Spring 2011 Subsample

<i>Plagiarism Source / Major</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>p</i>
Social work	6.28	6.87		
Nursing	4.06	5.97		
<i>Publication</i>			0.94	.47
A & S	0.28	0.81		
Business	0.61	1.18		
Computer science	0.32	0.88		
Education	0.99	3.46		
Engineering	0.57	0.93		
HES	0.67	1.45		
Social work	0.61	1.50		
Nursing	0.75	1.83		
<i>Student</i>			1.09	.37
A & S	8.43	8.67		
Business	8.11	8.03		
Computer science	9.01	8.10		
Education	10.94	7.95		
Engineering	9.55	7.23		
HES	8.64	6.67		
Social work	14.61	16.11		
Nursing	11.38	11.37		

* denotes significant *p* value ($p < .05$).

Independent samples *t* tests were run to determine whether knowledge of a plagiarism detection system had an impact on student plagiarism, that is, whether there were differences in the percentage of plagiarism in student assignments depending on whether or not students were aware that plagiarism detection systems were being used. For all analyses, Levene's test for homogeneity of variance was significant, indicating that this assumption was violated. As such, results of the *t* tests not assuming equal variances were interpreted. For overall overlap, results

indicated significant differences in percentage of overall overlap across semesters, $t(561.63) = 6.58, p < .001$. Specifically, students who were aware that a plagiarism detection system was being used had lower percentages of plagiarism ($M = 9.76, SD = 8.93$) than did students who were unaware that these methods were being used ($M = 16.55, SD = 16.97$; see Table 4.12). For Internet overlap, results indicated significant differences in percentage of overlap across semesters, $t(633.05) = 2.19, p = .03$. Students who were aware that a plagiarism detection system was being used had lower percentages of Internet plagiarism ($M = 4.36, SD = 5.03$) than did students who were unaware that these methods were being used ($M = 5.43, SD = 7.44$; see Table 4.12). For student overlap, results indicated significant differences in percentage of overlap across semesters, $t(557.93) = 6.82, p < .001$. Students who were aware that a plagiarism detection system was being used had lower percentages of student plagiarism ($M = 9.39, SD = 8.80$) than did students who were unaware that these methods were being used ($M = 16.33, SD = 16.92$; see Table 4.12). For publication overlap, results indicated no significant differences in percentage of overlap across semesters, $t(531.71) = -2.00, p = .05$. Students who were aware that a plagiarism detection system was being used had similar percentages of publication plagiarism ($M = .54, SD = 1.56$) than did students who were unaware that these methods were being used ($M = .32, SD = 1.10$; see Table 4.12).

Table 4.12

Plagiarism (Percentage Overlap Averaged Across Three Assignments) as a Function of Awareness of Plagiarism Detection Systems

Awareness	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
<i>Overall</i>				6.58
Unknown		16.55	16.97	<.001*
Known		9.76	8.93	
<i>Internet</i>				2.19
Unknown		5.43	7.44	.03*
Known		4.36	5.03	
<i>Publication</i>				-2.00
Unknown		0.33	1.10	.05*
Known		0.54	1.56	
<i>Student</i>				6.82
Unknown		16.33	16.92	<.001*
Known		9.34	8.90	

* denotes significant *p* value ($p < .05$).

Discussion

Generally speaking, there were lower rates of plagiarism when students knew they were being monitored. This suggests the detection system was an effective prevention strategy. Males had higher plagiarism rates than females though this was true only for the Spring 2011 semester data. These findings were consistent with previous research that males self-reported cheating more than females (Calabrese & Cochran, 1990; Davis, Grover, Becker, McGregor, 1992; Michaels & Miethe, 1989; Newstead et al., 1996). Although previous research suggests that cheating increases as students move through the lower grade levels and then begins to decrease as they move to college and graduate schools and other professional programs (e.g., Anderman

& Midgley, 2004; Franklyn-Stokes & Newstead, 1995; Haines et al., 1986; Jensen, Arnett, Feldman, & Cauffman, 2002; Murdock, Miller, & Goetzinger, 2007), this study did not confirm such conclusions. It has been consistently reported that business and engineering majors have higher incidences of cheating than arts and sciences (Bowers, 1964; Davis & Ludvigson, 1992; Newstead et al., 1996, Martin, Rao, & Sloan, 2009). However in this study, there were no differences in terms of college major with the exception of publication plagiarism, though this was true only for the Fall 2010 semester data.

Thus, regardless of class demographics, recognition by the instructor of the nature and extent of the plagiarism problem and acceptance of responsibility for deterring it are pivotal in reducing it. Previous research supports the conclusion that faculty bear the largest burden in mitigating plagiarism (Faucher & Caves, 2009; Garavalia, Olson, Russell, & Christensen, 2007; Howard & Davies, 2009; Jocoy & DiBiase, 2006; Lovett-Hooper, Komarraju, Weston, & Dollinger, 2007; Park, 2003; Staats, Hupp, Wallace & Gresley, 2009; Sutherland-Smith, 2008; Tackett et al., 2010; Thomas, 2004; Willen, 2004); although, empirical data addressing ways for faculty of large courses to mitigate the practice is lacking. As the trends toward increased usage of computer technologies and expanding commercialization of higher education continue, faculty will continue to have the most important role in preventing plagiarism in higher education.

Ultimately, prevention is about changing behavior. In the case of this research, the question is whether or not students knowing beforehand that their work will be checked for originality is a plagiarism deterrent. Put in a broader theoretical context, at least two perspectives apply—whether for mitigating plagiarism or any other behavior change: a cognitive approach and a behavioral or social learning approach.

Cognitive approaches focus on variables that promote awareness of basic values that guide our conduct, “educates” as to what we are doing and its implications, as well as what and how we should shun and what we should embrace. In the case of plagiarism, therefore, the use of Turnitin software as an educational tool translates into an examination of a) what plagiarism is; b) the ethics of non-attribution of others’ work, whether in terms of false claims to originality, or fairness to others who have struggled to be original in their ideas; and c) how one can avoid it.

The social learning approach, on the other hand, shapes behavior by use and awareness of rewards and punishments. The assumption is that incentives and disincentives not only guide our conduct, but that our attitudes, beliefs and values will become consistent with how we are compelled to act. In the case of plagiarism and the use of Turnitin, this translates both to praising original work and appropriate citation for the work of others (i.e., reward) and the repercussions of being caught for lack of originality and appropriate attribution (i.e., punishment).

These are not, of course, one-or-the-other alternatives, and a combination of approaches can be more effective than a single one. For the purposes of this research, however, the focus is on the behavioral. The appeal is in the simplicity of the behavior modification technique of essentially saying: *Your work will be checked for originality. If it is determined that your work is not original and/or does not carry appropriate credit for others’ work, then you will be penalized.* This approach is particularly inviting in the context of large classes and the relatively anonymous settings they represent.

Future research should consider having a punishment element to evaluate whether or not that would contribute to lower rates of plagiarism in these large classes. Future research would

benefit from different demographics of the sample studied, as the majority of these students were freshman.

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CHAPTER V:
SYNTHESIS AND RECOMMENDATIONS

Introduction

This dissertation focused on mitigating plagiarism in large introductory courses in higher education. Currently, there is little research literature using a sociological perspective to address the problem. This is an effort to fill the void by researching students' perspectives of a cheating culture on their campus and by evaluating ways that instructors can limit plagiarism through course design and plagiarism detection system. In this chapter, major themes and discussions of the three articles are summarized and critically examined. The chapter concludes with recommendations for future research.

Major Themes and Findings

Three tenets guided discussion of the research's major findings regarding mitigating plagiarism in higher education: 1) factors that underlie and influence its occurrence must be understood; 2) the student environment is an important dimension for academic integrity and can be changed to improve student behavior; and 3) educators have a responsibility to foster academic integrity.

Factors Influencing Plagiarism in Higher Education

In recent years, much discussion and concern in higher education has related to student plagiarism and associated issues, such as collusion and reference fabrication (Batane, 2010; Gullifer & Tyson, 2010; Hill & Page, 2009; MacDonald & Carroll, 2006; Sutherland-Smith, 2008; Walker, 2010; Williams, Nathanson, & Paulus, 2010). One factor contributing to the

increased concern is the commercialization of higher education, with the associated trend toward larger and less personalized classes and emphasis on learning as a product rather than a process. At least two issues contributed to the trend: financial difficulties of colleges and universities caused by decreases in funding to higher education and a shift to universal access to higher education (Milliron & Sandoe, 2008; Slaughter & Leslie, 1997; Slaughter & Rhoades, 2004; Thelin, 2004).

External funding through grants has become a viable solution to the budgetary issues. The faculty is spurred toward grant seeking through the tenure, promotion, and salary incentives system and the development of grant management entities within institutions. Being a good professor is now defined by publication records and grant monies received, not by the quality of education produced (Milliron & Sandoe, 2008).

Significant annual increases in tuition to counter lessening financial support from states further signify the commercialization trend in higher education. This draws increasing interest in and scrutiny of institutions of higher education from students and their parents, as they seek their return on the dollar (Murphy, 2009; Thelin, 2004). Martin (1994) asserts that emphasis in higher education has shifted from educating to issues of profits. This assertion is at least indirectly supported by Mertz (2004) and Ma, Wan, and Lu (2008), who maintain that plagiarism does not receive sufficient punishment as a deterrent because administration is focused on issues other than educating. Thus, in the contemporary university, institutional integrity tends to be compromised by the pressure to please the client (i.e., students and parents) (Slaughter & Rhoades, 2004; Sutherland-Smith, 2008).

In the meantime, the “win at all cost” cultural attitude is invading higher education. The grounds for competition are grade point averages and scores on standardized admission tests.

Thus, the pressure is on to perform in an ever more competitive environment, and so is the pressure to cheat (Murphy, 2009; Sutherland-Smith, 2008). Though it is difficult to establish a cause-and-effect relationship, lack of commitment to educating and effective response to rampant cheating seems to be linked to the commercialization trend (Hallak & Poission, 2007).

Observers also point to computer technology and the rise and spread of the Internet as now playing a major role in student behavior and institutional response to issues of academic integrity (Berlin, 2009; Maruca, 2005; Townley & Parsell, 2004). Students of today's Internet generation "...have been immersed in a culture that revels sharing freely" (Blum, 2009, p. 2).

Colleges and universities began to recognize that the Internet provided increased opportunities and resources for students' academic misconduct; students could easily copy material from any available source and post it into their own papers. (Bertram-Gallant & Drihan, 2010, p. 25)

Two trends of instruction in higher education trace their genesis, at least in part, to Internet technology. One trend that both reflects and compounds the issues of the current commercialization phase in higher education is the distance education movement. Realizing that public universities in particular can no longer rely on state revenues and traditional students, administrators see the potential of online courses to increase their enrollments and funding streams substantially (Sileo & Sileo, 2008; Tate, 2010). Another Internet technology-driven trend is the increasing use of hybrid or blended courses (i.e., conventional courses with a significant online component). These are considered as efficient generators of student credit hours production; large numbers of students can be taught with small numbers of faculty (Sileo & Sileo, 2008; Tate, 2010).

These larger institutional factors have a direct impact on the practice of plagiarism in higher education. In Chapter II, most students surveyed for this research (84%) believed that plagiarism is widespread on college campuses. Students' acknowledge institutional factors

contributing to the practice of plagiarism in their justifications for such behavior. Forty-four percent of respondents stated that plagiarism is the faculty's fault because faculty didn't explain the assignment properly, would never catch them (classes too large), or the faculty do not care. Thirty-five percent of respondents rationalize copying from the Internet because it is easy, openly available and hard to detect. Thirty-five percent justified plagiarism as a means to an end.

Student Environment to Improve Behavior

Social and behavioral scientists have long been aware that changing people's attitudes and behavior requires knowledge and understanding of human perceptual processes. Such understanding is essential with regard to mitigating plagiarism. Ashworth, Bannister and Thorne (1997) found that "understanding the student perspective on . . . plagiarism can significantly assist academics in their efforts to communicate appropriate norms" (p. 187). Thus, Chapter II examined students' understandings of, and attitudes towards, conventional and Internet plagiarism, with the intention of informing institutional policy. One hundred percent of the respondents defined conventional plagiarism and internet plagiarism correctly. Three fourths of the respondents thought that plagiarism was a major part of collegiate culture. Respondents overwhelmingly stated that they knew plagiarism was wrong, whether in conventional or Internet form. However, students also stated that it was worth the risk and generally easy to get away with. Individualism and winning at all costs was the prevailing cultural value contributing to plagiarizing, while freedom to do what is right was the prevailing cultural value to prevent a student from plagiarizing. The fact that students know what plagiarism is, recognize the practice as part of the collegiate culture and yet admit that it is wrong argues for an assertive stance by institutions of higher education to tip the scales away from the practice. These strategies are summarized below.

Educators Have Responsibility to Foster Academic Integrity

Lack of commitment by faculty to counter plagiarism is a key element contributing to plagiarism in higher education. Though authorities agree that better monitoring could possibly reduce the propensity to cheat, some also note, “most professors do not want the aggravation” (Ameen, Guffey, & McMillian, 1996, p. 202) or have too many students to undertake such a task. Callahan (2007) asserted that faculty and university officials

...have direct incentives to ignore the issue of academic integrity.... [They] are deterred from assuming this responsibility because time spent safeguarding the academic integrity of the learning environment is not a career-building activity generally valued by administration and it likely involves stressful interaction with students. For campus administrators who are recognized for their ability to tout the excellence of their programs and attract funding, addressing student cheating may appear to be a lose-lose situation. (p. 315)

Studies also indicated that when students perceived instructors to be vigilant and fair they were less likely to cheat (Bernardi & Adamaitis, 2006; Faucher & Caves, 2009; Genereux & McLeod, 1995; Lemons, Martin, & Seaton, 2011; Ledwith & Risquez, 2008; Milliron & Sandoe, 2008). In the contemporary university of large classrooms, anonymity of behavior and online instruction, faculty should utilize digital strategies to deter the practice, instead of just trying to monitor student behavior. One researcher went so far as to say, “Faculty members who fail to utilize plagiarism detection engines... are inviting above average levels of cheating” (Tackett et al., 2010, p. 79). Chapters III and IV used such detection systems to estimate plagiarism rates within large introductory courses with limited faculty involvement.

Specifically, the researcher reported in Chapter III the results of using a plagiarism detection system to evaluate different types of assignments. In assignments where students were asked their opinions of designated concepts, the use of Turnitin plagiarism detection system indicated that two thirds did not plagiarize to any extent; however, four percent plagiarized the

entire paper from another student. When students were given randomized critical thinking questions and asked to reference the textbook, plagiarism scores increased. However, when incorporating the 1-24 % category to include the textbook referencing, 78% of the students would not be considered plagiarizers. Four percent of the students completing the randomized critical thinking assignments copied verbatim from another student. Assignments consisting of critical thinking and application of content with textbook referencing were similar to the plagiarism scores of the randomized critical thinking questions assignment, with 75% in the 0-24% range. Two percent of students completing this type of assignment plagiarized the entire assignment (100%). Therefore, one can infer from the results of this study that asking students to think critically may lower the incidence of plagiarism on weekly assignments.

When students are aware of such detection systems being used by faculty, there were lower rates of plagiarism, as shown in Chapter IV. This suggests that systems can be an effective prevention strategy in large courses. Males had higher plagiarism rates than females, though this was true only for the Spring 2011 semester data. These findings were consistent with previous research that males self-reported cheating more than females (Calabrese & Cochran, 1990; Davis, Grover, Becker, McGregor, 1992; Michaels & Miethe, 1989; Newstead et al., 1996). Although previous research suggests that cheating increases as students move through the lower grade levels and then begins to decrease as they move to college and graduate schools and other professional programs (e.g., Anderman & Midgley, 2004; Franklyn-Stokes & Newstead, 1995; Haines et al., 1986; Jensen, Arnett, Feldman, & Cauffman, 2002; Murdock, Miller, & Goetzinger, 2007), this study did not confirm these conclusions. It has been consistently reported that business and engineering majors have higher incidences of cheating than arts and sciences majors (Bowers, 1964; Davis & Ludvigson, 1992; Newstead et al., 1996, Martin, Rao, & Sloan,

2009). However, in this study, there were no differences in terms of college major, with the exception of publication plagiarism, though this was true only for the Fall 2010 semester data. Thus, regardless of class demographics, recognition by the instructor of the nature and extent of the plagiarism problem and acceptance of responsibility for deterring it are pivotal in reducing it.

Limitations of the Research

For all three studies, the data were drawn from an *Introductory to Sociology* (Sociology 101) course. Although, all students taking Sociology 101 during the represented semesters were included, they had an option of taking a different social science course. At the subject university, Sociology 101 was either taught as a hybrid or as an online course only. This may have affected enrollment choice. Students taking this introductory course tend to be in the beginning stages of their higher education.

The findings of the research in Chapter II substantiate the need to address students' attitudes, beliefs, and values more thoroughly to inform policy. Even though the questionnaire provided rich data for the study, interviews and focus groups could have provided more supportive evidence and insights. The sample population presents another limitation of possible bias, as the majority of the respondents were "A" students.

Although Chapter III filled a gap in empirical data on the frequency, type and extent of plagiarism in different types of assignments, based on numerical and statistical analysis, limitations are present. The assignments used were one page written weekly assignments and not term papers, which may produce different results. The subject matter, Sociology, lends itself to general opinions of current topics which may alter plagiarism patterns.

By not including a punitive element in the Chapter IV study, a limitation was systemically included. To better evaluate the use of plagiarism detection systems to deter plagiarism guidelines for grade reduction or punishment need to be included.

Implications for Mitigating Plagiarism in Higher Education

Previous research supports the conclusion that faculty bear the largest burden in mitigating plagiarism (Faucher & Caves, 2009; Garavalia, Olson, Russell, & Christensen, 2007; Howard & Davies, 2009; Jocoy & DiBiase, 2006; Lovett-Hooper, Komarraju, Weston, & Dollinger, 2007; Park, 2003; Staats, Hupp, Wallace & Gresley, 2009; Sutherland-Smith, 2008; Tackett et al., 2010; Thomas, 2004; Willen, 2004). Yet, empirical data addressing ways for faculty of large courses to mitigate the practice is lacking. As the trends toward increased usage of computer technologies and expanding commercialization of higher education continue, faculty will continue to have the most important role in preventing plagiarism in higher education.

Ultimately, reinforced by the research reported here, plagiarism mitigation demands a multifaceted approach. Behavior change principles established in the social and behavioral sciences have the advantage of being strongly established by years of empirical research. Of particular relevance and utility are two perspectives: how individuals process and absorb information—cognitive theory (e.g., Fiske & Taylor, 1991), and how external forces in the environment shape behavior—social learning theory (e.g., Skinner, 1972).

A key concept in cognitive approaches is *perception*, that behavior is ultimately influenced by the way the individual *sees* the situation. Thus, a number of social psychologists, while not dismissing the role of personality and genetic attributes in behavior, conclude that the ways individuals view their social environment through the lens of their current social situation and, ultimately, their culture, is a key to both understanding and changing behavior (e.g., Fiske,

Kitayama, Markus, & Nisbett, 1998; Rodriques & Levine, 1999). In particular, attitude theorists see the cognitive dimension as critical to shaping subsequent behavior (e.g., see cognitive consistency theories of Festinger, 1959; Heider, 1958).

Thus, in the cognitive perspective's application to mitigating plagiarism, the bottom line is "educating" students on values and behavior they should avoid and those they should embrace. At the institutional level, this implies standard and well-advertised policies that define plagiarism and codify expectations for faculty to recognize it and students to avoid it. The message can be disseminated not only in written materials and on an institution's website, but in orientations and other assembly sessions during the school year. Plagiarism detection systems, in this context, can be used as an educational tool on how plagiarism occurs and how to avoid it, including proper citations, paraphrasing, and the development of one's own original work. The policy needs to be a conspicuous part of the institution's honor code.

The social learning approach, on the other hand, is the shaping of behavior by use and awareness of rewards and punishments. The assumption is that incentives and disincentives not only guide our conduct, but that our attitudes, beliefs and values will become consistent with how we are compelled to act (Bandura, 1969). In the case of plagiarism, this translates both to praising original work and appropriate citation for the work of others (i.e., reward) and knowing that there will be repercussions (punishment) of being caught for lack of originality and appropriate attribution. At the individual level, this implies faculty awareness of their responsibility, indeed accountability, to monitor and deter plagiarism in their classes. This entails advertising and enforcing plagiarism policies, and holding students accountable if they plagiarize. Plagiarism detection software, in this context, is used to catch those who plagiarize and to deter those who would do it by fear of punishment. The appeal is in the simplicity of the

behavior modification technique of essentially saying: *Your work will be checked for originality. If it is determined that your work is not original and/or does not carry appropriate credit for others' work, then you will be penalized.*

At the institutional level, higher education officials must be willing to define expectations but also to stand behind the professorate in plagiarism cases so that punishment for violations is swift and certain. Such recommendations may not be entirely palatable to officials in higher education who face pressures to recruit and retain ever-higher levels of student enrollment in this age of higher education commercialization. However, unmitigated plagiarism would seem to strike at the very integrity of the modern university, for faculty and students alike.

Recommendations for Future Research

This research establishes empirical support for a number of strategies to enrich the quality and enhance academic integrity in higher education. However, in the course of the work, a number of issues emerge for additional emphasis or investigation. They reflect recommendations from those who share similar research interests in sociology and instructional leadership, as well as interests from the author's own experience teaching large introductory sociology classes.

Regular and periodic investigation of the attitudes, beliefs, and values of students regarding academic misconduct in general and plagiarism specifically needs to be conducted to inform academic policy. The issues will remain but likely morph into different forms and require different mitigation strategies in the Internet Age. A static, one-strategy-fits-all will not work. Surveys of this nature would also help faculty in course design and development to stay on top of plagiarism and other issues that are particularly challenging for large class offerings.

A strong case can be made for replication of the Chapter II research on campus norms. However, researchers should include multiple levels of class standing and interviews or focus groups to provide a more in-depth examination of students' cognitive processing of plagiarism. Furthermore, it would be worthwhile to expand the examination to faculty members' attitudes, values, and beliefs regarding plagiarism on their campus.

Finally, there should be more efforts to identify different course designs as to their effectiveness to limit plagiarism. In spite of many and varied faculty and administrator opinions on the topic, relatively little empirical research has been employed to substantiate some mitigation assumptions. A study similar to Chapter III would contribute to the body of research in this regard. Such research studies can also facilitate a more comprehensive understanding of mitigating plagiarism in an age of large, impersonal course environments.

In the meantime, rampant plagiarism in colleges and universities remains the "elephant in the room" of higher education. A strong and affirmative response to this situation by faculty, students and administrative officials is necessary to meet this major challenge to our education system. Without it, we affirm by default that giving credit where credit is due, hard work, and critical and original thinking are unimportant not only to our education but to our broader social values.

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