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Faculty Beliefs Regarding Online Academic Dishonesty and the Measures Taken to Address Academic Dishonesty in Georgia

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FACULTY BELIEFS REGARDING ONLINE ACADEMIC DISHONESTY AND THE
MEASURES TAKEN TO ADDRESS ACADEMIC DISHONESTY IN GEORGIA

by

DARRYL J. HANCOCK

(Under the Direction of Elizabeth Downs)

ABSTRACT

Distance education has become a significant element of instruction in higher education. The need to ensure the academic integrity of distance learning courses has increased as online instruction has grown to meet the needs of its distributed body of students. Although academic dishonesty has been a well documented problem for many years, the distance learning environment has not been studied as carefully as instruction in traditional classrooms. Specifically, little research has been conducted to identify what intervention measures are available to faculty to address academic dishonesty in online courses. Additionally, little empirical research has been conducted to study the extent to which faculty use these measures or how effective they believe these measures to be. The purpose of this study was to address this lack of research.

Data collection was divided into two phases. In phase I a comprehensive list of intervention measures was collected from 4 sources: faculty focus groups, surveys of distributed faculty and distance learning administrators, and relevant literature. This phase of research produced a list of 50 intervention measures. Phase II collected survey data from 629 college

faculty throughout the University System of Georgia. Faculty were asked about their beliefs regarding academic dishonesty in traditional and online classroom environments. Faculty with experience in the online environment were also provided with the list of 50 intervention measures from the first phase of research and asked to indicate which they use and to rate the effectiveness of each.

Results showed that faculty experienced with online assessments have a greater concern for cheating than faculty experienced only with traditional, classroom-based assessment. The most used intervention measures included providing clear directions, distributing grades over multiple assignments, educating students about academic dishonesty, and having an explicit honor code. The intervention measures rated as most effective included using proctoring options, avoiding multiple choice questions, and distributing grades over multiple assignments. Of the 10 highest used and 10 highest rated, the only measures common between both lists were proctoring exams and distributing grades over multiple assignments.

These findings inform distance learning administrators and faculty as to best practices when addressing academic dishonesty.

INDEX WORDS: Academic dishonesty, Distance learning, Intervention measures, Online classes

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A Dissertation Submitted to the Graduate Faculty of Georgia Southern University in Partial
Fulfillment of the Requirements for the Degree

DOCTOR OF EDUCATIONAL ADMINISTRATION

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DEDICATION

I dedicate this dissertation to my wonderful family:

- To my beautiful wife, Laura, whose patience, love, and support made this project possible.
- To our precious daughters Catherine, Emily, and Rebecca, whose hugs and kisses have made it all worthwhile.
- To my mother, my late father, and my sister, Celina, for their lifetime of love and encouragement.

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CHAPTER 1

INTRODUCTION

Purpose of the Study

Of the many challenges faced by administrators in higher education, academic integrity is among the most important. The integrity of an institution's courses is fundamental to the quality of education a student receives. Dishonest student behavior jeopardizes instructional quality and has a direct negative impact on an institution's primary missions of teaching and learning. Hoy and Miskel (2005) defined the teaching and learning process as the technical core of a school. Administrators must understand dishonest academic behavior in order to combat a potential erosion of the technical core. A significant body of research on cheating, conducted primarily in traditional classroom environments, has been devoted to the study of academic dishonesty in higher education. However, current research has not sufficiently addressed academic dishonesty associated with distance learning education.

Allen and Seaman (2010) found that 4.6 million students were taking at least one online course in the fall of 2008, a 17% increase over the previous year. Since online instruction is one of the fastest growing areas of higher education, educators must consider the academic implications of such growth. As an alternative delivery method for classes, distance education remains a part of the technical core of a school and thus subjects the quality of the teaching and learning process to the same issues of academic integrity as traditional instruction. A review of the literature provides a general perspective of academic dishonesty in traditional classroom environments. (Andrews, Smith, Henzi, & Demps, 2007; Bernardi, Metzger, Bruno, Hoogkamp, Reyes, & Barnaby, 2004; Brimble & Clark, 2005; Etter, Cramer, & Finn, 2006; Kisamore, Stone, & Jawahar, 2007; McCabe, Treviño, & Butterfield, 1999).

Background of the Study

Investigation into the literature on academic dishonesty reveals an array of topics and research tracks. Research may be divided into the categories of prevalence, student and faculty attitudes and perspectives, demographic factors, plagiarism, the use of technology, and prevention strategies. The majority of studies address multiple aspects of academic dishonesty; therefore, there is much overlap when discussing the research.

Academic dishonesty is a well documented problem in all levels of traditional, classroom-based education. The prevalence of cheating has been established through a history of empirical research spanning forty-five years (Bowers, 1964; Kisamore, Stone, & Jawahar, 2007; Mason, 2006; McCabe & Treviño, 1997; McCabe, Butterfield, & Treviño, 2006; Whitley, 1998). Though the exact percentage of students who admit to dishonest behavior varies depending on the approach of the research, many studies place the number at between 50% and 70% who have cheated before or have intent to cheat. Though studies on the prevalence of academic dishonesty in online instruction are less numerous, the evidence is more than sufficient to state that it is common and is a threat to the integrity of instruction (Kennedy et al., 2000; Lanier, 2006; Shaw, 2004).

Research on academic dishonesty is centered primarily on students. Data have been collected regarding student perceptions and attitudes, reasons for misconduct, situational factors, and personality influences that help predict or deter dishonest behavior (Etter, Cramer, & Finn, 2006; Jordan, 2001; McCabe, Butterfield, & Treviño, 2001; Shaw, 2004). Reasons for misconduct include cheating as a result of laziness, failure to understand course material, time constraints, low GPA, and a general lack of preparation for assignments and exams (Mason, 2006; Lanier 2006). The data indicate that academic dishonesty occurs among different

demographics (Kisamore et al., 2007), educational levels (McCabe, Butterfield, & Treviño, 2006), and academic majors (Bowers, 1964; McCabe & Treviño, 1997; Whitley, 1998). Research also supports that a high moral development leads to a lower incidence of cheating (Bernardi, Metzger, Bruno, Hoogkamp, Reyes, & Barnaby, 2004).

Other lines of research are focused on descriptions and comparisons of various demographic factors. Findings from empirical studies indicate that differences do exist between genders and among various student groups (Smyth & Davis, 2003). Research on the relationship of gender on cheating suggests either no significant difference between male and female students (Lanier, 2006) or that males exhibit dishonest behavior more than females (Smyth & Davis, 2003). Males also believe cheating is more socially acceptable (Genereux & McLeod, 1995). No research was found that suggested females cheat more than males. Younger students - freshmen and sophomores - are more likely to cheat than upper classmen; furthermore, undergraduates in general act dishonestly more often than graduate students (Kisamore et al., 2007; Nonis & Swift, 2001). Differences have also been documented between on-campus and off-campus students providing evidence that on-campus residents act dishonestly more than their off-campus counterparts (Nonis & Swift, 2001; Smyth & Davis, 2003). Additional research extends the understanding of academic dishonesty by revealing that it is prevalent in other countries, specifically Australia and Japan, as well as the United States (Brimble & Clark, 2005; Diekhoff, LaBeff, Shinohara, & Yasukawa, 1999).

Literature on academic dishonesty in online courses as compared to traditional courses is inconclusive. Though Shaw (2004) and Lanier (2006) disagree as to whether online students cheat more than their traditional counterparts, both agree that cheating does exist in the online environment at significant levels. Kennedy et al., (2000) determined that both faculty and

students perceive that it is easier to cheat online than in the traditional classroom. They also report that cheaters and non-cheaters both agree that it is easier to cheat in the distance learning environment.

A large number of studies examine the different perceptions of academic dishonesty between faculty and students. Students believe academic dishonesty exists to a greater extent than do higher education faculty. Students also feel that cheating is more acceptable (Brimble & Clark, 2005). College faculty believe academic dishonesty is a more egregious problem than students; however, students perceive the penalties as being more severe than do their instructors (Andrews, Smith, Henzi, & Demps, 2007; Burke, 1997; Frost, Hamlin, & Barczyk, 2007). Faculty admit they do not follow institutional policy regarding cheaters (Burke, 1997), though there is evidence to support that faculty who have a higher confidence in their administration are more likely to address individual incidences of cheating (Simon et al., 2003). Studies of intervention measures indicate faculty at institutions with honor codes have confidence that the policies assist in the prevention of dishonest behavior (McCabe, Butterfield, & Treviño, 2003).

An investigation into the types of dishonest behavior leads to a large body of practice-oriented articles on plagiarism. Though empirical studies are not as numerous, they are sufficient to add significantly to the understanding of this type of dishonest behavior. Empirical research supports that students are generally opposed to plagiarism and other students who plagiarize (Kroll, 1988; Scanlon & Neumann, 2002). The literature also supports that educating students about plagiarism and the relevant institutional policies are effective strategies in reducing the numbers of students participating in this form of cheating (Brown & Howell, 2001; Landau, Druen, & Arcuri, J., 1994). Of course, the Internet is cited by recent studies as a major tool used

by students to plagiarize (Lester & Diekhoff, 2002; Johnson, Patton, Bimber, Almeroth, & Michaels, 2004).

Empirical studies conducted specifically to examine the use of technology and the Internet as a tool for academic dishonesty are limited. Lester and Diekhoff (2002) report 12% of cheaters utilize the Internet for plagiarism and differ little in age, level in school, and GPA from dishonest students who do not use technology to plagiarize. Johnson, Patton, Bimber, Almeroth, and Michaels (2004) discovered that students use technology to plagiarize papers and other information but found that faculty have not begun to utilize technology to detect or deter dishonesty. Students create and share documents electronically but submit their work as a paper copy. This asymmetry between the use of technology by the students and faculty gives the students an advantage when participating in dishonest academic activities (Johnson et al., 2004). No distinction was made between traditional and online-student use of technology for cheating.

Research on prevention measures centers around the perceptions and effects of honor codes and academic integrity policies. Studies by McCabe, Treviño, and Butterfield, (1999 & 2003) and Von Dran, Callahan, and Taylor (2001) investigated faculty and student perceptions of honor codes and compared schools with honor codes to those without. Honor codes and well-defined academic integrity policies do reduce the occurrence of cheating as self-reported by students (Kennedy, Nowak, Thomas, & Davis, 2000; McCabe, Treviño, & Butterfield, 1999; McCabe, Butterfield, & Treviño, 2003; Von Dran, Callahan, & Taylor, 2001). No literature was found that specifically addressed the relationship of honor codes to online courses. The prevention of academic dishonesty in distance learning courses is addressed primarily in practice-oriented journals that suggest strategies to deter or apprehend dishonest students. This literature suggests intervention measures that include personalized assignments, curriculum

rotation, increased interaction, proctored exams, technology-based searches, and honor codes (Cizek, 1999; McCabe, Treviño, & Butterfield, 1999; Olt, 2002; Rowe, 2004; Trenholm, 2007); however, no empirical evidence could be found to support the use or effectiveness of these measures or their use in online courses.

In summary, the review of literature on academic dishonesty indicates that cheating is prevalent among college students (Bowers, 1964; Kisamore, Stone & Jawahar, 2007; McCabe, Butterfield, & Treviño, 2006; McCabe & Treviño, 1997; Whitley, 1998). Empirical studies report that differences do exist between gender, student groups (Smyth & Davis, 2003), and the perceptions of students and faculty (Brimble & Clark, 2005; Andrews, Smith, Henzi, & Demps, 2007). Information on plagiarism is less conclusive but suggests that it is an important aspect of academic dishonesty (Brown & Howell, 2001; Kroll, 1988; Landau, Druen, & Arcuri, 1994; Scanlon & Neumann, 2002). Students use technology to cheat more than faculty use technology to deter or apprehend cheaters (Johnson et al., 2004). Finally, research on intervention measures focuses primarily on the use of honor codes and academic integrity policies, pointing to a lower incidence of academic dishonesty in schools with honor codes (Dran, Callahan, & Taylor, 2001; McCabe, Treviño, & Butterfield, 1999, 2003).

Many aspects of academic dishonesty in the traditional classroom have been investigated. Although it is clear from the literature that online cheating occurs, research into the distance learning environment is limited. There is little research on methods used by online students to cheat or their attitudes toward dishonest behavior. There is also limited empirical research that addresses potential intervention measures available to online faculty. Research on faculty perceptions and attitudes is also incomplete. The effectiveness of strategies to deter or apprehend online cheaters have been discussed in practice but not empirically studied. Additionally, the

determination of distance learning faculty to identify and implement effective strategies is unknown.

Statement of the Problem

The topic of academic dishonesty has a diverse body of research spanning several decades (Whitley, 1998). Research exists on the perspectives of students, comparisons between different demographic groups, faculty perspectives on the issue, prevention through the use of honor codes, the use of technology, and plagiarism. While research on these aspects of academic dishonesty is mature in many respects, it is not complete. Higher education institutions have used technology to implement distance learning programs to educate larger numbers of distributed students (Allen & Seaman, 2010). With the growth of online instruction, a new area of academic dishonesty has emerged. Although past research has focused on the traditional classroom, academic dishonesty in the online environment remains largely unaddressed by empirical studies.

Research strongly supports the prevalence of academic dishonesty in traditional and online courses (Bowers, 1964; Kisamore, Stone, & Jawahar, 2007; Mason, 2006; McCabe & Treviño, 1997; McCabe, Butterfield, & Treviño, 2006; Whitley, 1998); however, few studies focus on how an online environment differs from the classroom setting. Furthermore, there is little information on how faculty perceive academic dishonesty or what actions they are taking to address this issue in distance learning courses. The body of practice-based literature recommends strategies to deter or apprehend dishonest students (Kitahara & Westfall, 2007; Scanlan, 2006). These strategies are either grounded in experiential practice or extrapolated from research on traditional classrooms; however, no empirical evidence can be found that explains the extent to

which faculty are incorporating these strategies into distance education classes.

The prevalence of academic dishonesty in online courses (Kennedy, Nowak, Raghuraman, Thomas, & Davis, 2000; Lanier, 2006; Shaw, 2004) stresses the need for educators to take action to deter and apprehend dishonest students. If no action is taken by distance learning faculty, the academic integrity of their classes and the institution may be compromised. Before informed policy and procedural guidelines for addressing online cheating can be developed, administrators need to have a thorough understanding of current faculty perceptions and practices for combating this problem. Therefore, the purpose of this study will be to better understand online academic dishonesty and the measures taken by faculty to address academic dishonesty.

Research Questions

The overarching research question will be: What are faculty beliefs regarding online academic dishonesty and the measures taken to address academic dishonesty in Georgia? The following sub-questions will guide the research of this study:

1. What intervention measures are available to faculty to address academic dishonesty?
2. To what extent do faculty believe academic dishonesty is a problem in online classes?
3. What intervention measures do faculty use in their online courses?
4. To what extent do faculty believe intervention measures are effective?
5. How do faculty backgrounds and demographic characteristics predict the use and effectiveness of intervention measures?

Significance of the Study

Distance learning programs have grown quickly over the past decade. Such rapid growth has contributed to the void in the professional literature on academic dishonesty in the online environment. This study will add to the body of literature on academic dishonesty in distance education by investigating faculty views of cheating in online courses and actions taken to ensure the academic integrity of the content.

Information garnered from this study will assist in the development of distance learning content. Faculty, instructional designers, and administrators will benefit from a better understanding of how academic dishonesty is perceived and how it is being addressed. Data will either support current design and development practices or call for the implementation of more thorough techniques to apprehend and deter dishonest behavior. Faculty will be informed by this study regarding the pedagogy, course structure, and assessment techniques that are currently in use in distance education. If the beliefs of online instructors do not reflect the prevalence of academic dishonesty in online courses, faculty will be able to alter their courses appropriately to ensure academic integrity.

The quality of all instruction is of primary importance to any institution of higher education. While distance education is not a new delivery medium, it is new to many colleges and universities. The rapid expansion of online instruction has presented academics with a new environment that has a diverse set of pedagogical and technological problems. The results of this study can be applied toward improving support for online faculty in the areas of design, development, and facilitation. This could necessitate administrative decisions relating to the hiring and assignment of personnel, purchase of software, and reallocation of institutional funds.

In addition, a comparison of full-time and adjunct faculty use of strategies addressing academic dishonesty would further guide and direct administrative choices.

Delimitations

This research study will be conducted using public two-year and four-year higher education institutions in the State of Georgia. Only data from full-time and adjunct faculty who have taught an online course for at least one full term will be considered when investigating the use of methods to detect and deter academic dishonesty. All college faculty, those with and without online teaching experience, will be considered when determining faculty perceptions of academic dishonesty in online courses. No restriction will be placed on classroom teaching experience or credentials.

Limitations

Data will be collected via an online questionnaire and will be dependent on voluntary responses from faculty participants. The distributed audience (the University System of Georgia) is too large to accommodate a login function to prevent multiple responses; however, requests will be made to only submit one response. The data collected will contain subjective descriptions of the professional beliefs and actions of the online faculty. It is possible that their answers will not accurately reflect their practice.

Definition of Key Terms

It is difficult to locate a formal definition for cheating. Much of the literature on academic dishonesty uses the terms “academic dishonesty” and “cheating” interchangeably, implying that

cheating in the given context is of an academic nature. Prescott (1989) defines cheating as “fraudulent behavior involving some form of deception in which one's own efforts or the efforts of others are misrepresented.” Many universities and colleges offer a specific definition of academic dishonesty. The Code of Academic Integrity at George Washington University (2009) very clearly defines academic dishonesty as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.

The Center for Academic Integrity defines academic integrity as “a commitment, even in the face of adversity, to five fundamental values: honesty, trust, fairness, respect, and responsibility. From these values flow principles of behavior that enable academic communities to translate ideals into action (Center for Academic Integrity, 1999).” For the purposes of this research, this definition may also be stated as the need for institutions to ensure that the values of honesty, trust, fairness, respect, and responsibility are upheld at all times.

Distance learning is best defined by Rubiales, Steely, Wollner, Richardson, and Smith (1998):

Distance learning is the process whereby the education of a student occurs in circumstances where the educator and the student are geographically separated, and the communication across this distance is accomplished by one or more forms of technology, typically electronic, such as television and computers ... (p. 32).

This simple definition includes technology as a delivery medium, as does the modern-day use of the phrase. For the purposes of this study, distance learning, distance education, and online instruction will be used interchangeably. An online course will be considered any fully developed college course delivered through the Internet.

A traditional course or traditional instruction will refer to learning that occurs with the instructor and student in the same location, usually in a college classroom or lecture hall.

Honor codes are defined as “the proclamation and legislation of the intentions of a community of persons united in mutual agreement to oppose those inclinations and strategies that they might otherwise give in to and adopt to further their individual ends” (Hein, 1982, p. 4).

Plagiarism, or to plagiarize, as defined by the Merriam-Webster Dictionary, is to steal or pass off the ideas or words of another as one’s own. It further explains that to plagiarize is to use another’s production without crediting the source. Plagiarism is considered a sub-category of cheating.

Summary

Academic integrity is an essential element of the technical core of all institutions of higher education. Many studies address academic dishonesty in traditional classroom settings; however, the rapid growth of online programs has left a gap in the literature regarding this delivery medium. This research study will help address this void by investigating faculty beliefs and effectiveness of strategies used to discourage academic dishonesty in online courses.

This research will be conducted as a mixed methods study. Data will be collected from experienced and inexperienced online faculty from two- and four-year colleges and universities within the University System of Georgia, the public university system of 35 institutions for the state. An online questionnaire will be developed that utilizes both Likert scale and open-ended questions. Likert scale data will be analyzed using descriptive and inferential statistics. Data from open-ended questions will be condensed through thematic analysis.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

The focus of this research study was to understand faculty beliefs regarding online academic dishonesty and the measures taken by faculty to address online academic dishonesty in higher education in Georgia. Analysis of the literature revealed that research on academic dishonesty is both extensive and diverse. This literature review is divided into two primary sections: a) research into academic dishonesty in the traditional classroom and b) in online courses. In order to provide a basis for understanding online academic dishonesty, general information and information on traditional classrooms is discussed first. Literature exclusively focused on distance education will then be reviewed.

For the purposes of this review, the literature researching traditional forms of academic dishonesty is divided into the categories of the prevalence, specific forms, demographic and contextual factors, student and faculty attitudes and perceptions, the influence of technology on cheating, and honor codes and other intervention measures used to deter and detect cheating. Studies specific to online academic dishonesty are discussed as a single body of literature.

Academic Dishonesty in the Traditional Classroom

Prevalence. The prevalence of academic dishonesty has been documented in a large number of studies (Whitley, 1998). When describing research on academic dishonesty, Kelley and Bonner (2005) state, “[academic dishonesty] is a ‘chronic problem’ that affects all levels of education and involves significant numbers of students (Kelly & Bonner, 2005; p. 43).” The first large scale study on the prevalence of cheating was conducted by Bowers in 1964. Bowers found

that 3 out of every 4 students have participated in some form of academic dishonesty. Bowers surveyed over 5,000 students from nearly 100 colleges and universities in the United States. Over 30 years later, in 1997, students at 9 of these same schools were surveyed by McCabe and Treviño (1997). The purpose of their replication of the Bowers study was to see if there were any changes in the prevalence of dishonest acts. Their 1997 study provides evidence that overall cheating only increased slightly; however, a large increase can be seen specifically with cheating on tests and exams (Bowers, 1964; McCabe & Bowers, 1994; McCabe & Treviño, 1997).

A 1998 meta-analysis of 107 studies on cheating amongst college students concluded that 70% either have cheated before or have intent to cheat (Whitley, 1998). Whitley reviewed research conducted between 1969 and 1996 for the purpose of determining the factors that are associated with cheating. Significant factors identified were pressure for grades, a low risk/high reward ratio, poor study habits, and a perception that cheating is socially acceptable. It was also revealed that past dishonest behavior and participation in party activities were strong predictors of future cheating (Whitley, 1998).

An additional important aspect of Whitley's study was found in the methodology. The articles selected for review were located through a search of three databases – PsychLIT, SocioFile, and ERIC. This selection process, coupled with a comparison of the references in several known articles, produced the 107 research articles (Whitley, 1998). This simple identification technique is indicative of the large amount of literature available on this topic.

A distinction must be made between two variations on research into the prevalence of cheating. One research stream investigated single incidence rates of academic dishonesty. These studies measured the likelihood that students will cheat on a specific assessment. This research did not rely on students self-reporting their dishonesty through a questionnaire. Student

performance on an assessment was detected by using invented situations designed specifically to give students the opportunity to cheat. This research design required that the students be deceived by these fictional assessments in order to study their behavior (Hollinger & Lanza-Kaduce, 1996). Research using this methodology reported a wide range in the prevalence of cheating from a low of 3% in a study by Karlins, Michaels, and Podlogar (1988) to a high of 59% in a study by Hetherington and Feldmen (1964).

A second type of research relied on students self-reporting their behavior through an anonymous survey (Hollinger & Lanza-Kaduce, 1996). These studies investigated cheating over an extended period. A 1981 study by Eve and Bromley revealed that 63% of students admitted they had cheated at least once during their college experience with 22% admitting they had cheated five or more times. Hollinger and Lanza-Kaduce (1996) narrowed this time span to a traditional 15 week semester and found that 68% confessed to committing at least one form of academic dishonesty.

Recent research in academic dishonesty continued to indicate high percentages of student cheating. In a 2006 study by McCabe, Butterfield, and Treviño, 5,331 graduate business students from 54 colleges and universities in the United States and Canada were surveyed about their behavior with regard to cheating. The purpose of the study was to investigate the prevalence and causes of academic dishonesty among graduate business students. The survey discovered that 56% of business majors had cheated as opposed to 47% of non-business majors. The predominant cause of their dishonest behavior was identified as “observed peer behavior” (McCabe, Butterfield, & Treviño, 2006).

Academic dishonesty was not limited to American higher educational institutions. A comparison study by Diekhoff, LaBeff, Shinohara, and Yasukawa (1999) between students in

Japan and the United States discovered high percentages of cheating in both cultures. Of the 276 Japanese students surveyed, 55.4% reported they had cheated on at least one exam. In contrast, only 26% of the 392 American students reported cheating; however, the researchers suggested differences between the two groups were at least partly due to demographic differences. The sample of Japanese students was older and had more college experience than the American students. Additionally, the Japanese students came from three different colleges while the American sample came from only one. The researchers suggested that the majority of the difference between the two groups was culturally driven with the Japanese students experiencing more pressure to perform on isolated exams.

Additional research supported that cheating is a world-wide phenomenon. Elzubeir and Rizk (2003) conducted a quantitative study of 88 medical students in the United Arab Emirates. Their study asked students if they have or would consider participating in any of a list of academically dishonest scenarios. Answers – yes or no - ranged from 4.5% to as high as 38.6%. Though this suggested cheating was less prevalent in this country, the numbers remain significant. An additional finding of this study was a significant difference between male and female students. Higher numbers of females indicated they consider dishonest behavior wrong and that they would not take part in it. This could also be part of the explanation for the lower prevalence rate than American students since 66 students out of the 88 in the sample were female (Elzubeir & Rizk, 2003).

A study conducted by Brimble and Clark in 2005 investigated dishonest behavior in Australian Universities. Their research questions addressed four important areas by using 20 scenarios of dishonest behaviors to gain input from students and faculty. One of these questioned the prevalence of the misconduct. Faculty correctly estimated the prevalence of dishonesty for

students getting special treatment for exams under false circumstances, i.e. allowing makeup exams, giving extra time, etc.; however, with all other scenarios the misconduct was more prevalent than faculty believed. Of the twenty scenarios, percentages of occurrence ranged from 6% to 54% of students saying they have participated in the dishonest behavior at least once (Brimble & Clark, 2005).

Specific Forms of Cheating. In addition to their investigation into the prevalence of academic dishonesty, Hollinger and Lanza-Kaduce (1996) extended their research to include specific types and forms of cheating. To determine the types of cheating in which students engaged, an existing questionnaire was modified. Honor Court students who were “very knowledgeable about the forms of academic dishonesty prevalent on this particular campus (Hollinger & Lanza-Kaduce, 1996; p. 295) provided additions to the survey instrument. A list of 10 items was created and grouped into 4 categories. Student responses revealed that 46.7% of students admitted to having committed some form of taking information during the fifteen week term, 37.7% admitted to plagiarism, 22.7% reported misrepresentation, and 21.1% the tendering of information (Hollinger & Lanza-Kaduce, 1996). The most common form of cheating was plagiarism by neglecting to cite reference material (33.3%). This finding supported a 1989 research project at the University of Massachusetts-Amherst that reported a 34.3% rate of failure to cite copied material (Project PULSE, 1989). Other common forms of cheating were copying homework or lab assignments (26.7%) and copying during an examination (26.3%) (Hollinger & Lanza-Kaduce, 1996).

Demographic and Contextual Factors. Several important findings were reported by Smyth and Davis (2003) in their examination of cheating in two-year colleges. These researchers separated the act of cheating from how acceptable it was to cheat. Comparisons between

different groups of students discovered that 92% of students felt that cheating was ethically wrong, but 45% stated they find cheating “socially acceptable.” Demographic differences were recorded between male and female students. Academic dishonesty was considered more socially acceptable and was perpetrated more by males than females. This finding was supported by several other studies (Davis et al., 1992; McCabe & Treviño, 1997; Nonis & Swift, 2001; Simon, Carr, McCullough, Morgan, Oleson & Ressel, 2004; Simon et al., 2004). Smyth and Davis extended the data on gender further by reporting that female students were more likely to report incidences of academic dishonesty than males.

Smyth and Davis (2003) also reported that students living in dormitories believed cheating was more acceptable than off-campus students. No additional research could be found that addressed the difference between on and off-campus students. However, multiple studies did address differences in age and indicated that younger students generally conduct dishonest acts more often than older students. Though Crown and Spiller (1998) found mixed results, the research generally indicated that younger students were more likely to carry out dishonest acts than older students (Kelly & Worrell, 1978; McCabe & Treviño, 1997; Nonis & Swift, 2001; Smyth & Davis, 2003); however, Smyth and Davis (2003) also found that sophomores were more likely to state that cheating was socially acceptable than freshmen. These researchers made a connection between dishonest behavior in the classroom and unethical business practices such as the scandals at Enron (2001) and WorldCom (2002), where dishonest practices went unaddressed by multiple company personnel at various levels of authority (Smyth & Davis, 2003).

In a study of 1,793 students, grade point average was revealed to be a factor in academic dishonesty (McCabe & Treviño, 1997). Findings indicated that an inverse relationship exists

between grade point average and a student's likelihood of cheating. These findings are supported by studies from Crown and Spiller (1998) and Davis, Grover, Becker, and McGregor (1992).

This research was similar to a 1978 study by Kelly and Worrell that reported students with lower standardized test scores (ACT) were more likely to cheat than students with higher scores. All four studies provided evidence that students may be more likely to cheat when they have or are experiencing poor academic performance.

Kisamore, Stone and Jawahar (2007) conducted a study of 217 business students examining the interaction between situational factors and demographic or personality constructs. Seven hypotheses were developed and tested using both a survey and the Hogan Personality Inventory (HPI). Results indicated that males are not more likely to engage in dishonest academic acts than females. This finding is inconsistent with other research (Lanier, 2006; Lester & Diekhoff, 2002; McCabe, Treviño, & Butterfield, 2001; Nonis & Swift, 2001; Smyth & Davis, 2003). The removal of the "most deviant males," i.e. those with low validity scores, was cited as a possible reason for this discrepancy. The authors also suggested the similarity between genders could support current research indicating that the difference between males and females had narrowed. In addition, results also revealed that personality constructs and situational factors combined to influence student perceptions and intent to participate in dishonest behavior (Kisamore et al., 2007).

Studies that investigated personality factors sought to understand internal student variables. Research into the contextual or situational factors investigated external conditions that influence academic dishonesty. Research indicated that the best contextual predictor of students participating in academic dishonesty was their perception of their peers' behavior (McCabe & Treviño, 1993; McCabe, Treviño, & Butterfield, 2002). These researchers also found a school's

“culture of integrity” and the likelihood of being caught cheating to be strong factors influencing student behavior (McCabe et al., 2002).

Genereux and McLeod (1995) surveyed 365 college students to investigate the “circumstances surrounding cheating.” The study produced lists of factors that increased and decreased the likelihood of cheating. Students cited instructors who “do not care” about cheating and those with low oversight as contributing to an academically dishonest environment; other factors that increased cheating were unfair exams and the importance of financial support. This was the only study found where financial support was mentioned as a factor in academic dishonesty. Environments with these negative factors had led 83% of the students surveyed to cheat before. Students cited high instructor oversight, fair exams, and essay exams as three factors controlled by the instructor that would decrease the likelihood of cheating. Other factors cited were severity of punishment for getting caught and the value of course material (Genereux & McLeod, 1995).

Student and Faculty Attitudes and Perceptions. As evidenced in the following studies, research on academic dishonesty was either centered primarily on students or included them as part of the research. Investigations have been done regarding student perceptions and attitudes, reasons for misconduct, situational factors, and personality influences that helped predict dishonest behavior.

The purpose of a 2006 study by Mason was to identify the dishonest academic behaviors that were most common and acceptable among students. Part of this study confirms the high percentages of dishonest acts; however, Mason also took a slightly different approach from previous studies by asking students to report on their knowledge and perceptions of other students. 98.1% of the 840 participating students had witnessed or believed that their peers had

cheated. Nearly 90% of students felt academic dishonesty was at least a minor problem. Though the purpose of this study was to identify the dishonest behaviors, it was difficult to see if Mason provided open ended questions to collect data or provided a list of behaviors for which students could confirm their use. The questionnaire was not provided and the data tables made no mention of student input for the list of behaviors. Mason found that laziness, failure to understand course material, and time constraints were the behaviors perceived to be the most common reasons for dishonesty. Though the data supported this statement, Mason continued by saying that “student’s academic integrity seemed most challenged when students were unprepared for course assignments or exams” (Mason, 2006, p.298). Mason suggested prevention strategies that could be used to counter the common types of dishonesty he identified. No research could be found to support their effectiveness.

A very large study of over 6,000 students was conducted by Davis, Grover, Becker, and McGregor (1992). Data were collected through a 21-question survey instrument that addressed student attitudes toward cheating, past history of cheating, their perceptions of intervention measures, and the instructor’s concern with cheating. The questionnaire was distributed to students from 35 institutions: 8 large public schools, 8 medium public schools, 5 large private schools, 8 small private schools, and 6 2-year schools. When asked if cheating is wrong, 90% of the students answered yes. Still, 76% of students reported cheating in either high school or college. An additional finding indicated that over 90% of the students believed that faculty should be concerned with academic dishonesty in their classroom. The findings from this study indicated that students who think academic dishonesty is wrong cheat anyway, but they want faculty to create an environment that prevents them from cheating.

Andrews, Smith, Henzi, and Demps (2007) conducted a survey of 423 faculty members and 1,153 students to identify faculty and student perceptions of academic dishonesty. The primary focus of the research was to assess the degree to which academic dishonesty issues exist in dental schools. The researchers selected 5 significant assessments in the dental program. Students were asked if they had cheated on each of these at least once. Rates range from 46% to 75%. In addition to supporting the prevalence of cheating, their study found significant difference between faculty and student perceptions with faculty believing academic dishonesty was a more serious problem at their institution than students. Faculty also had stronger beliefs that the judicial process was fair and impartial. Students believed that the penalties were more severe than perceived by the faculty. Students also had a higher support for the academic integrity policies than believed by the faculty (Andrews, Smith, Henzi, & Demps, 2007).

Brimble and Clark (2005) investigated dishonest behavior with questions that addressed four important areas of research: the seriousness of the misconduct, the perception of penalties, the perceptions of why students cheat, and the prevalence of cheating has already been discussed. Data were collected from faculty and students through the use of 20 scenarios of dishonest behaviors. First, the seriousness of different misconduct scenarios revealed that faculty view most acts of cheating as much more serious than students. Forty percent of students consider that using someone else's research or false research to be only "minor cheating," while 11% do not regard this as cheating at all. The researchers suggested this could be due to students not understanding what actually constitutes cheating (Brimble & Clark, 2005).

The next major finding of Brimble and Clark was the perceptions of penalties for various misconduct scenarios. Students and faculty were presented with six possible penalties beginning with "no penalty" and increasing in severity up to "expulsion from the institution." In every case

data averages indicated faculty recommend penalties that are at least one level higher than the student recommendations. There was little difference between faculty and students when the scenarios were ordered according to their severity (Brimble & Clark, 2005).

The third major finding reported the reasons students cheat as perceived by students and faculty. The most common reason was, “I wanted to help a friend.” Assignment difficulty, the lack of time to complete the work, and the perception that they would not be caught were the next three highest reasons. Faculty perceptions placed the desire to help a friend as number three, with “I had a personal crisis” at number one (Brimble & Clark, 2005).

Studies on academic dishonesty focused primarily on students (Diekhoff, LaBeff, Shinohara, & Yasukawa, 1999; Mason, 2006) or compared student and faculty perceptions (Andrews, Smith, Henzi, & Demps, 2007; Brimble & Clark, 2005). However, Jonathan Burke conducted a quantitative study in 1997 that specifically examined faculty perceptions and attitudes toward academic dishonesty. A survey completed by 742 full- and part-time faculty members indicated that faculty did not view academic dishonesty as a serious problem, though 65% of them were certain that it had occurred in their classrooms. The study also revealed that most faculty members did not follow institutional policy when cheating was discovered (Burke, 1997). While Burke’s data are now over a decade old, it represents the changes that have occurred in faculty perceptions over time. Recent studies by Frost, Hamlin, and Barczyk (2007) presented faculty perceptions of academic dishonesty differently from Burke’s 1997 investigation.

A 2007 study by Frost, Hamlin, and Barczyk surveyed 211 faculty members at two state universities. Results revealed recognition of academic dishonesty as a significant problem. Most faculty members stated they were lenient with students for a first offense but took stronger action

on a second offense. Even so, most faculty members, acknowledged that there were no procedures in place to track occurrences (Frost, Hamlin, & Barczyk, 2007).

In 2005 Kelley and Bonner compared faculty and administrators perceptions of academic dishonesty. This was the only study found that included administrators. Responses from 296 faculty and 131 administrators revealed faculty were more likely to believe academic dishonesty to be pervasive on campuses than administrators. However, they also reported that when combined 62.6% of faculty and administrators only considered cheating to be a minor problem. The researchers stated this was a weaker response than was warranted by the prevalence of academic dishonesty reported by other research.

Influence of Technology and the Internet. Before reviewing the literature focused on online learning, a distinction must be made between research on academic dishonesty in the distance learning environment and research on Internet cheating: the literature discussing the latter investigated student use of technologies to cheat in traditional classes rather than specifically in the online environment.

Literature on the influence of technology on academic dishonesty suggested students are increasing their use of the Internet and other technologies for cheating (Center for Academic Integrity, 2005; Konheim-Kalkstein, 2006; Johnson et al., 2004; McCabe, 2001). A 2005 study by the Center for Academic Integrity at Clemson University reported the number of students admitting to using the Internet for cheating rose from 10% in 1999 to 40% in 2005. Additionally, a national survey by McCabe (2001) reported that 5% of students have purchased research papers from Internet “paper mill” websites. Small electronic devices such as cameras, MP3 players, and calculators were also cited as possible technologies used for academic dishonesty

(Konheim-Kalkstein, 2006); however, no research was found that specifically investigated these devices.

The use of the Internet for plagiarism was one focus of the practice-based literature. Austin and Brown (1999) discussed methods for faculty to recognize and identify student work that is not legitimate. Their recommendations included comparing papers to the assignment requirements, searching for key words through popular Internet search engines, and using plagiarism detection services. In addition to these recommendations, Austin and Brown offered many strategies for educating students about plagiarism. Their recommendations included discussion of online research, providing examples of unacceptable papers, and explaining faculty methods for checking student work. It was also recommended to show students sites where term papers may be purchased and provide a critique of one of the papers so students could see the poor quality of the papers these sites provide (Austin & Brown, 1999).

Austin and Brown (1999) provided a series of recommendations for addressing the problem through the structure of the assignments. They suggested assignments should have specific criteria to minimize the possibility that generic papers would meet the requirements. Stebelman (1998) also promoted the idea that broad topics should be avoided to both improve the assignment quality and decrease the likelihood that compatible papers could be found on the Internet. Austin and Brown (1999) also recommended in-class writing and asking students to summarize their papers after they have been submitted.

Johnson, Patton, Bimber, Almeroth, and Michaels (2004) examined how technology affects academic dishonesty. The researchers began with the premise that students use technology to plagiarize papers and other information; however, faculty had not begun to utilize technology to detect and deter dishonesty. Students created and shared documents electronically

but then submit their work as a paper copy. The asymmetry between the use of technology by the students and instructors gave the students a significant advantage (Johnson et al., 2004).

Johnson et al. (2004) designed their study to use and evaluate software designed to identify patterns in text or identical statements between papers. Students submitted papers for an assignment in a course that had been taught previously. Of the 590 papers in their study, 4 papers had over 500 matching pairs of key phrases and 2,214 identical phrases. The authors noted that this was a similar method used by popular anti-plagiarism companies such as *Turnitin.com* (Johnson et al., 2004).

While their study supported the role of anti-plagiarism detection software in higher education, Johnson et al. (2004) utilized this knowledge to make effective statements regarding strategies for its use. They surmised that full disclosure of the use of anti-plagiarism software would serve to both punish offenders as well as deter others. Disclosure of the strategy was an essential step as detection and punishment alone have little deterring effect if students are not aware that anti-plagiarism software is in use. Of the 590 participating students, 66% answered positively that an instructor's warning of the use of plagiarism detection software would affect their behavior (Johnson et al., 2004).

Etter, Cramer, and Finn (2006) studied how a student's ethical orientations and personality were associated with their use of technology for academic dishonesty. The method for this study began with using two student focus groups to identify the types and uses of information technology. These data revealed 24 dishonest behaviors. These 24 behaviors, written in the form of scenarios, were used in conjunction with the Ethical Position Questionnaire (EPQ) and components of the Myers Briggs Type Indicator Test. The authors also used a technology

acceptance model defined by previous research to indicate a student's propensity to use technology for dishonest purposes (Etter, Cramer, & Finn, 2006).

The questionnaire was given to 237 students at a church-affiliated college and another 500 at a two-year campus of a research university. Data revealed a difference between the two groups of students with those from the church-affiliated school having higher values and a greater contempt for cheating. However, the rankings of the behaviors between the two groups of students were closely matched. The authors also reported that the data matching personality factors with dishonest behavior indicated that students who are adverse to sensation-seeking activities and who valued idealism rated the 24 scenarios as being more serious (Etter, Cramer, & Finn, 2006).

Studies by Lester and Diekhoff (2002) and Underwood and Szabo (2003) also supported the findings from other research on the prevalence of cheating using the Internet and that males find cheating with technology more acceptable than females; however, there was conflicting data regarding other demographic factors such as marital status and class level. No research could be found that specifically addressed cheating in forms other than writing-based assessments.

Honor Codes and Intervention Measures. Research on honor codes made up much of the literature on prevention strategies. Honor codes were defined as a policy requiring students to monitor the behavior and report any dishonest activity to specified campus authorities (McCabe & Treviño, 1993). As evidenced in the following studies, a substantial body of literature investigated the perceptions and effects of honor codes and/or academic integrity policies.

A 2001 study by Von Dran, Callahan, and Taylor measured the academic integrity of students at a large northeastern university. Unethical behavior in the business world around 1991 led to the creation, implementation, and promotion of a new academic integrity policy; however

discussion had taken place regarding the possible implementation of an institutional honor code. The researchers explained the difference between an academic integrity policy and an institutional honor code. Honor codes are considered more of an oath or a pledge that the students make to promote the academic integrity of the institution by not participating in dishonest behavior and to report any incidences of which they become aware. An academic integrity policy is considered an expected campus behavior. The primary difference between the two is the aspect of a solemn student pledge. Survey data were collected after the new academic integrity policy had been in place for four years. These data were compared to the original data from 1991 (Von Dran, Callahan, & Taylor, 2001).

The first research question investigated whether students were more informed about the academic integrity policies between the 1991 and 1997 studies. Students in the 1997 study were significantly more informed than those in 1991. Twice the number of students answered yes to the questions of whether the course syllabi, the instructors, and the student handbook distributed information about academic integrity policies and procedures (Von Dran, Callahan, & Taylor, 2001).

The second research question addressed student attitudes towards cheating and their perceptions of it on campus. The number of students who felt cheating was a serious problem on campus dropped by 40% between the 1991 and 1997 studies. The researchers attributed this change to the implementation and dissemination of information about the academic integrity policy. However, the number of students who agreed with the statement “cheating directly contradicts the goals of education” declined and the number who agreed with the statement “it is not my responsibility to report cheating” increased (Von Dran, Callahan, & Taylor, 2001).

The third research question measured the frequency of cheating. The data presented mixed results. For this question some items increased, such as “Padded bibliography,” while others declined, i.e. “Gave answer to another in exam” and “Got Q and A from student who had already taken exam” (Von Dran, Callahan, & Taylor, 2001).

The fourth question addressed student perceptions regarding an honor code. Two questions were asked; 1) Do you think an honor code should be adopted by the School of Business and 2) How effective do you think it would be? Answers to both of these questions indicated that support for an honor code had declined (Von Dran, Callahan, & Taylor, 2001).

The final research question investigated how large of a role cheating held in the business world and if success was more important than honesty. Fewer students felt that cheating occurred in the business world and only 14% approved of success over honesty. The results from the study indicated that the new academic integrity policy was moving the institution towards a more ethical environment. The research did not reveal a need specifically for an institutional honor code but did support the use of a well defined and publicized academic integrity policy (Von Dran, Callahan, & Taylor, 2001).

The research team of McCabe, Treviño, and Butterfield has published multiple studies on academic integrity. Their 1999 study, published in the *Journal of Higher Education*, investigated perceptions of academic integrity at schools with and without honor codes. This research was conducted with open ended questions. The researchers received 4,285 questionnaires from 31 institutions. Analysis of the data proceeded through a three-step process that included breaking the transcripts into basic “thought units,” categorizing, and classifying responses. Each environment was analyzed independently before comparisons were made. The data were broken down into three major themes: 1) institutional/contextual factors related to academic integrity, 2)

attitudes/personal factors related to academic integrity, and 3) institutional/contextual factors related to academic dishonesty. Each theme was broken down into multiple categories. Some categories were unique to either a code environment or a non-code environment. It should be pointed out that the researchers differentiated between academic integrity and academic dishonesty. Academic integrity was considered to be the environment and culture upheld by the school among the institution's students. Academic dishonesty was considered to be the specific factors related to cheating (McCabe, Treviño, & Butterfield, 1999).

One notable finding within the first theme identified by McCabe et al. (1999) was that over 15% of students at honor code schools commented on the existence of the code at their institution. The survey instrument did not ask any questions specific to honor codes, so the inclusion of this information by so many students made it obvious that they had an effect on the thoughts of students in regard to cheating. Categories within the first theme also identified a large number of student responses indicating that cheating does occur at non-code institutions and that there is a high lack of awareness of any policies regarding academic integrity at these schools (McCabe, Treviño, & Butterfield, 1999).

The second theme, reporting on the personal factors related to academic integrity, included categories of why students might or might not cheat, confusion over what constituted academic dishonesty, and how to reduce cheating. The largest category in this theme was student justifications for cheating. Responses to this part of the questionnaire were diverse and included pressure to perform, stress, competition for grades, lack of preparation, and laziness. Nearly twice the number of responses for this category came from students at the non-code schools, indicating the inclination of these students to provide justification for their actions (McCabe, Treviño, & Butterfield, 1999).

The third theme reported student perceptions of why policies may be ineffective and the problems students have with honor codes. Between the students at code schools and those at non-code schools, over 14% felt that codes and policies were ineffective. Reasons for this ranged from being too vague, lack of understanding or enforcement, or that honor codes simply don't work. Another reported perception was that honor codes were believed by some to make cheating easy due to less monitoring or their establishment of less restrictive environments. Finally, one category included comments indicating large class size and teacher apathy as a common factor for academic dishonesty (McCabe, Treviño, & Butterfield, 1999).

The research of McCabe, Treviño and Butterfield supports that honor codes are effective at decreasing the incidence rate of academic dishonesty. The researchers extended this investigation in a 2003 study that explored faculty attitudes and behaviors at schools with and without honor codes. The researchers formulated 10 hypotheses regarding faculty attitudes and behaviors at "code schools" and "non-code schools." These hypotheses focused on faculty perceptions of student accountability, fairness and effectiveness of the institution's academic integrity policies, and the likelihood of faculty reporting violations, as well as their personal actions to catch cheaters (McCabe, Treviño, & Butterfield, 2003).

The study began with data from 21 schools. This number was reduced to 14 schools in order to eliminate small professional schools, schools with modified or hybrid code designs, schools with especially small response rates, and one 2-year school. Six of the remaining 14 schools were private schools with approximately 7,000 students. Eight of the schools were public institutions of similar size. A random sample of faculty members was selected. 2,408 questionnaires were distributed, with 803 returned for a response rate of 33.3%. The research noted that schools with honor codes had a 40.4% return rate from their faculty while only 29.7%

of faculty members from schools without an honor code returned the questionnaire. The researchers attributed this to a stronger commitment to academic integrity policies from schools with an honor code (McCabe, Treviño, & Butterfield, 2003). Results from the study did not support the hypothesis that predicted faculty with previous code experience currently in non-code environments would be less likely to believe that the institution's academic integrity policy was fair or effective. It also did not support the hypothesis that this group would be more active in catching cheaters. However, the data did support that non-code faculty are more active in dealing personally with suspected cheaters and to take actions to catch potential cheaters. Code faculty are more likely to believe that students should be held responsible for peer mentoring and to believe that the institution's academic integrity policies were fair and effective. These results support that honor codes have effects on faculty attitudes and behaviors. The results also support previous research that suggested that schools that did not use honor codes would benefit from their adoption (McCabe, Treviño, & Butterfield, 2003).

Much of the literature on honor codes is primarily focused on their effects when implemented throughout an institution (McCabe, Treviño, & Butterfield, 1999; McCabe, Treviño, & Butterfield, 2003; Von Dran, Callahan, & Taylor, 2001); however, research conducted by Konheim-Kalkstein (2006) suggests that implementation at the classroom level may also be effective. In a cognitive psychology course, Konheim-Kalkstein presented academic integrity as a course requirement. On the first day of class, students signed a contract that stated, "I promise to abide by an honor code in this class, that I will neither give nor receive aid on any quizzes or exams, and that I will not plagiarize someone else's work." Before any assessment during the term, students would reiterate their understanding of the academic integrity requirement by signing a pledge that read, "I have neither given nor received unauthorized aid on

this quiz/exam.” At the end of the term, data collected through an anonymous survey indicated that over half the students cited the honor codes as having influenced their behavior. Students reported feeling more respected with the honor code in place. Additional comments suggested a strengthening of the student-faculty relationship and a desire to not betray a “personal obligation” to the instructor (Konheim-Kalkstein, 2006). While this study was very limited in size with a single class of 43 students, it did suggest that honor codes do not have to be implemented on an institutional level to be effective.

In contrast to the research supporting the use of honor codes, research by Hollinger and Lanza-Kaduce (1996) suggests they may not be completely effective. While investigating specific forms of academic dishonesty, Hollinger and Lanza-Kaduce collected data from students ranking the effectiveness of countermeasures. The use of an honor-system reporting “hot line” was ranked as the least effective deterrent. The researchers suggested this was evidence that the honor system at large universities (the study’s sample population) was no longer successful (Hollinger & Lanza-Kaduce, 1996).

Kennedy et al., (2000) included a short list of techniques cited by faculty that could be used to prevent academic dishonesty. These included proctored exams, rotating assignments, personalizing assignments, incorporating open-book exams, and requiring interaction with the instructor. An earlier study by Davis, Grover, Becker, and McGregor (1992) asked students the question “What measures will deter or discourage cheating in the classroom?” (p. 18). The most common responses from students were (1) to use separate forms of the test, 2) to inform students why they should not cheat, 3) to arrange seating so that students have space between them, and 4) to monitor students as they take the test (Davis, Grover, Becker, & McGregor, 1992).

Research by Hollinger and Lanza-Kaduce (1996) has been previously discussed regarding their finding related to the prevalence of academic dishonesty in general and specific forms; however, their study also revealed student perceptions of the effectiveness of intervention measures on cheating. A list of the specific intervention measures was created with help from a panel of university students and faculty. Their data from a survey of 1,672 students divided the sample population into two groups: cheaters and non-cheaters. They report very little difference between cheaters and non-cheaters in regard to their ranking of intervention measure effectiveness. Over 81% of students perceived the most effective intervention measure were to scramble test questions so each student's exam would be unique. Over 65% of students felt small class sizes, using several proctors, having unique makeup exams, and having more than one form of exam were also effective methods to detect and deter cheating. The least effective measures cited by students were having more exams and fewer take home assignments (23.7%), using pencil only exams (22.7%), and not allowing students to leave the examination room (22.1%). The use of a "hot line" to report cheating had the lowest perception of effectiveness (16%) (Hollinger & Lanza-Kaduce, 1996).

Summary of Academic Dishonesty in the Traditional Classroom. The prevalence of academic dishonesty has been securely established by the literature (Bowers, 1964; Kisamore et al., 2007; McCabe & Treviño, 1997; McCabe, Butterfield, & Treviño, 2006; Whitley, 1998). Research spans over forty years. Additionally, cheating has not been limited to higher education institutions in the United States. Though cheating was prevalent to different degrees, research studies reveal it occurred in Japan (Diekhoff, LaBeff, Shinohara, & Yasukawa, 1999), United Arab Emirates (Elzubeir & Rizk, 2003), and Australia (Brimble & Clark, 2005). Academic dishonesty occurred among different demographics (Kisamore et al., 2007; Nonis & Swift, 2001;

Smyth & Davis, 2003), educational levels (Davis et al., 1992; Kelly & Worrell, 1978; McCabe & Treviño, 1997; McCabe, Butterfield, & Treviño, 2006) and academic majors (Bowers, 1964; McCabe & Treviño, 1997; Whitley, 1998). Differences were also documented between male and female (Kisamore et al., 2007; Smyth & Davis, 2003), as well as between on-campus and off-campus students (Smyth & Davis, 2003).

Studies that compared student and faculty perceptions indicated that differences exist regarding appropriate penalties for cheating and the moral significance of cheating (Andrews, Smith, Henzi, & Demps, 2007; Brimble & Clark, 2005). Research suggested faculty believe academic dishonesty is a more severe threat and that the judicial process is fair and impartial; however, students regard penalties as more severe than did faculty (Andrew et al., 2007). Peer behavior and the desire to help a friend are cited as major reasons to cheat (Brimble & Clark, 2005). Faculty do not follow institutional policy (Burke, 1997) and are lenient with students on their first offense (Frost et al., 2007).

Research into the influence of technology on academic dishonesty suggests that technology is effective at detecting plagiarism (Johnson, Patton, Bimber, Almeroth, & Michaels, 2004). The use of technology is also effective as a deterrent when students are made aware in advance that it will be used (Johnson et al., 2004). Though no empirical studies could be found, practice-based literature provided recommendations to faculty for measures to address plagiarism. These recommendations included methods for detection as well as alterations to assignment criteria and delivery as a means of deterrence (Austin & Brown, 1999). Student use of technology was influenced by student personality. Students who held higher values than those with aversion to sensation-seeking are more opposed to academic dishonesty (Etter, Cramer, & Finn, 2006). Students did use technology and the Internet for academic dishonesty; according to

research, this use is increasing (Center for Academic Integrity, 2005; Konheim-Kalkstein, 2006; Johnson et al., 2004; McCabe, 2001). Research indicated faculty do not use technology to detect and deter academic dishonesty to the same extent as students use it to cheat (Johnson et al., 2004).

The use of honor codes and academic integrity policies was generally accepted as being effective at deterring cheating when students are informed and educated about the policy (Von Dran et al., 2001; McCabe et al., 1999; McCabe et al, 2003). However, some research data suggested honor codes may be less effective at large universities (Hollinger & Lanza-Kaduce, 1996).

Techniques cited by faculty to prevent academic dishonesty included proctored exams, rotating assignments, personalizing assignments, incorporating open-book exams, and requiring interaction with the instructor (Kennedy et al., 2000). Intervention measures cited by students include the use of separate forms of the test, scrambling test questions, keeping class sizes small, informing students why they should not cheat, arranging seating so that students have space between them, and to monitor students as they take the test (Davis, Grover, Becker, & McGregor, 1992; Hollinger & Lanza-Kaduce, 1996). Students perceived the less effective intervention measures were having more exams and fewer take home assignments, using pencil only exams, not allowing students to leave the examination room, and using a “hot line” to report cheating (Hollinger & Lanza-Kaduce, 1996).

Academic Dishonesty in Online Classes

The first part of this literature review has provided an overview of academic dishonesty in higher education. These studies concentrated on cheating as a general phenomenon or examined academic dishonesty in traditional classrooms. This second part of the literature review will center on the literature addressing distance learning.

Kennedy, Nowak, Raghuraman, Thomas, and Davis (2000) surveyed 172 students and 69 faculty members regarding their perceptions of academic dishonesty in online courses. Results indicated that both groups believed it was easier to cheat online than in a traditional classroom. More male faculty who had never taught online believed it was easier to cheat online. The data also suggests that students who had never taken an online course believed it was easier to cheat online than those who had experience with distance learning. Faculty were concerned that 1) someone other than the student would be completing the assignments and exams, 2) that methods used for cheating in traditional classrooms would also be used online, and 3) that it would be more common for students to plagiarize and download papers online (Kennedy, Nowak, Raghuraman, Thomas, & Davis, 2000).

When discussing online strategies for minimizing academic dishonesty, Olt (2002) presented four strategies available to faculty to address the problem. In strategy 1 Olt states “The first and most serious disadvantage [to address cheating] is the instructor’s inability to ascertain who is actually taking an online assessment?” Strategy 1 was actually a collection of recommendations including 1) utilizing login requirements for the learning management system as well as for individual assessments, 2) assigning multiple short assessments throughout a course, 3) using prolonged small group projects that produce a product, and 4) increasing instructor/student interaction through email and occasional synchronous chats. Olt’s argument

for these recommendations was based on the belief that students would have difficulty securing a friend who is willing to provide ongoing assistance in cheating. Strategy 1 recommended open-book writing assignments submitted electronically so a plagiarism service may be used. Other parts of this study included utilizing the date and time availability settings of quizzes to make collaboration more difficult, large randomized question pools, and the tracking features of the learning management system to identify false statements of technology failure (Olt, 2002).

In contrast to strategy 1, strategies 2-4 each only address one intervention measure. Strategy 2 recommended that the instructor design more effective online assessments by writing questions that require higher order thinking. Strategy 3 recommends that assignments and assessments be rotated each semester the course is taught. Strategy 4 suggests the use of an academic integrity/dishonesty policy (Olt, 2002). The four strategies presented by Olt were not empirically based. While she did cite additional articles to support her recommendations, these references were either practice-based or were projected ideas based on empirical findings.

Rowe (2004) also recommended several strategies recommended by Olt, such as utilizing large question pools and restrictive time and date settings. Additionally, Rowe suggested that students may use spyware and computer diagnostic software to see the answers of other students either in real time or after the student has completed the assessment (Rowe, 2004). This was the only literature found that mentioned this type of software as a potential problem. Rowe did not provide any empirical evidence to support his recommendations. Rowe included a list of ideas from Cizek (1999) to consider as prevention measures; however, a review of Cizek's text revealed this list was not created through empirical methods and no research had been done to ascertain the effectiveness of these measures. Rowe based several suggestions on Cizek's list including proctoring, time restrictions, large pools of questions, reviewing assessments for

similarities in incorrect answers, and ensuring the learning management system has secure servers (Rowe, 2004).

A thorough analysis of cheating in fully online asynchronous classes was presented by Sven Trenholm (2007). Trenholm's article was a compilation of research regarding a wide range of issues related to online cheating and pedagogy. Trenholm began by dividing distance learning courses into two categories based on their assessment practices. Classes such as the humanities, history, and psychology were considered "Writing-Based" (WB) courses due to the common use of writing-based assessments. Math, science, business, and computer courses were referred to as "Math or Fact-Based" (MFB) courses because of their emphasis on calculation and factual recall. Trenholm challenged the concept that MFB courses can address academic dishonesty through a pedagogical approach, suggesting that the objective nature of their assessment material demands proctoring (Trenholm, 2007).

Trenholm stated that MFB courses "do not have technology-based services such as Turn-it-in (p. 284)" to use as a check system to combat academic dishonesty. He further stated that MFB courses cannot address the possibility of cheating solely through project-based and written assessments due to the need for factual recall and calculation. Trenholm regarded the current system of online assessments as primarily based on the honor system and did not believe this allows instructors to ensure the academic integrity of their courses. Though he recognized the additional time and costs, Trenholm recommended proctored exams be used in all MFB courses. He also recommended that universally accepted proctoring standards be introduced and a network of testing centers be promoted to assist in addressing this problem (Trenholm, 2007). Trenholm supported his positions with published data from other researchers.

Several studies supported Trenholm's concerns. Rowe (2004) believed that though plagiarism had been addressed in online classes, little attention had been given to assessments utilizing multiple-choice and calculation questions. Additionally, a survey by Cotton (2002) of 16 two-year colleges in New York State reported that 25% of the faculty for MFB courses did not use any type of proctoring. Though the size of this study was insufficient to draw conclusions, it did suggest the possibility that a large percentage of courses may not require any proctoring measures. The publications by Trenholm (2007), Rowe (2004), and Cotton (2002) are the only literature found that addresses academic dishonesty with assessment using multiple-choice (factual recall) and calculation questions.

In a comparison study by Wellman (2005) between students in a medical terminology course that used proctored vs. un-proctored testing, 117 students were divided into two groups and given a pre-test before an online, asynchronous unit of instruction. After the unit was completed, a post-test was given. Both the top-performing students and the lowest performing students in the proctored group did better than those in the un-proctored group (Wellman, 2005). Wellman suggested that the proctored environment promoted more thorough student preparation.

Kitahara and Westfall (2007) discussed a hardware approach to addressing academic dishonesty with online students. They presented the need for proctored exams and the use of a "Securexam Remote Proctor.TM" The "Securexam Remote ProctorTM" is a piece of hardware purchased by students that allows faculty to monitor online students while at their distributed locations. The device is connected to a student's computer. It records the student's fingerprint as official identification, though there was no explanation of how this fingerprint was to be verified. A 360-degree camera and microphone are used to detect "unusual or unapproved activity" (Kitahara & Westfall, 2007). Associated software alerts the instructor and records audio and

video as needed for review at a later time (Kitahara & Westfall, 2007). This hardware/software proctoring solution had only been recently produced when this article was published and was still experimental. No research was found that indicated this product's effectiveness in the online environment.

Additional discussion of the literature on academic dishonesty and distance learning must point out the absence of research in several areas. Though several studies recommended methods that could be used to deter or apprehend cheaters in online courses (Austin & Brown, 1999; Johnson et al., 2004; Kennedy et al., 2000; Trenholm, 2007), no empirical research was found on intervention measures available to faculty or the effectiveness of any of the methods recommended by the practice-based literature. Additionally, no literature was found that discussed the extent to which faculty implemented methods to prevent academic dishonesty in their online classes.

Summary of Academic Dishonesty in Online Courses. The prevalence of cheating had been well documented in both traditional classes (Bowers, 1964; McCabe & Treviño, 1997; McCabe, Butterfield, & Treviño, 2006; Whitley, 1998) and online classes (Kennedy et al., 2000). Both students and faculty perceived that it is easier to cheat in online courses (Kennedy et al., 2000). Cheaters varied based on their demographics, with research of traditional courses showing males were more likely to cheat than females and were less likely to consider academic dishonesty ethically wrong (Kisamore et al., 2007; Nonis & Swift, 2001; Smyth & Davis, 2003). However, no research could be found that investigated demographic differences between distance learning students and traditional students. Plagiarism was studied more frequently than other types of cheating but these articles were not exclusive to the online environment or always empirically researched. The literature indicated that honor codes and publicized academic

integrity policies as intervention measures are effective deterrents (Von Dran et al., 2001; McCabe et al., 1999; McCabe et al, 2003); however, no research could be found regarding their implementation or effectiveness in online classes.

A variety of practice-based studies presented measures for faculty to use to counter academic dishonesty (Austin & Brown, 1999; Johnson et al., 2004; Kennedy et al., 2000; Trenholm, 2007). Recommended methods included ensuring students must login to classes and assessments, interacting with students to become familiar with their writing, rotating assessments, implementing academic honesty policies or honor codes (Olt, 2002), and proctoring assessments (Trenholm, 2007); however, there was no research providing evidence that these measures are effective or have been widely implemented. A hardware solution had been developed that monitors student activity during a distributed assessment through audio and video technology (Kitahara & Westfall, 2007). This intervention measure had also not been empirically studied.

Conclusion

An examination of the literature included in this review showed that empirical research on academic dishonesty in the traditional classroom is extensive. However, there was much less empirical research regarding academic dishonesty in the distance learning environment. Literature on academic dishonesty in online courses was primarily practice-based, particularly in regard to the availability of intervention measures faculty employed to deter and detect cheating. Little or no empirical evidence could be located on the effectiveness of these intervention measures. Additionally, no literature could be located that presented faculty perceptions

regarding the effectiveness of intervention measures or the extent to which they have utilized them in their online classes.

CHAPTER 3

METHOD

Introduction

The purpose of this study was to investigate faculty beliefs regarding online academic dishonesty and the measures taken to address academic dishonesty in Georgia. The overarching research question was: What are faculty beliefs regarding online academic dishonesty and the measures taken to address academic dishonesty in Georgia? The following sub-questions have guided the research of this study:

1. What intervention measures are available to faculty to address academic dishonesty?
2. To what extent do faculty believe academic dishonesty is a problem in online classes?
3. What intervention measures do faculty use in their online courses?
4. To what extent do faculty believe intervention measures are effective?
5. How do faculty backgrounds and demographic characteristics predict the use and effectiveness of intervention measures?

To best answer these research questions, the study was divided into two separate phases.

Phase I

Research Design. The first phase of the project collected data pertaining to the various options available to faculty to address academic dishonesty in online courses. Data from phase I provided information to answer research question 1: What intervention measures are available to faculty to address academic dishonesty? In order to create a comprehensive list of measures, data were collected from four sources: (a) two focus groups of experienced faculty at a local institution, (b) a web survey of experienced online faculty at distributed locations, (c) a web

survey of distance learning administrators, instructional designers, and trainers, and (d) recommendations from empirical and practice-based literature for both online and traditional environments. Three of the four sources of data gathered through phase I of the data collection involved human participation: the focus groups of local faculty and the survey of both distributed online faculty and distance learning administrators.

Focus groups of experienced local faculty. Focus groups were assembled to provide a discussion of intervention measures available to faculty to address academic dishonesty in online courses. Eight experienced online faculty members comprised a convenient sample selected from a list of 48 online faculty at a rural state college in Georgia. The participants were divided into two groups each consisting of four members selected from a variety of disciplines including history, science, English, political science, and social studies. Collectively the 8 members had 37 years of experience with online instruction. The two groups met for a total of 73 minutes.

At the beginning of both focus groups faculty were provided an introduction to the study, explanation of the goals of the focus group, and a request for each participant to cite their years of experience and the courses they have taught online. The meetings used an open discussion format prompted by three specific questions: (1) What general intervention measures have you used to deter or detect academic dishonesty in your online classes? (2) How do you address plagiarism in your online classes, and (3) What do you do to make your online quizzes and exams more secure? Both focus groups were recorded for later review. Focus groups were conducted in a classroom and conference room on the campus of Middle Georgia College. Both focus groups were conducted during the summer of 2009. A detailed protocol for the focus groups may be found in Appendix A. Table 1 summarizes the demographic data for both focus groups. A list of intervention measures from the focus groups will be discussed in chapter 4.

Table 1

Summary Demographic Data for Focus Groups

Faculty	Focus Group	Sex	Discipline	Age	Yrs Exp.	Yrs Exp. Online
A	1	M	English	30-39	9	4
B	1	M	Science	60+	39	1
C	1	M	Science	40-49	18	10
D	1	M	Pol. Science	40-49	16	3
E	2	F	Sociology	30-39	8	3
F	2	F	History	30-39	12	6
G	2	F	English	40-49	15	4
H	2	M	History	50-60	23	6

Web survey of experienced online faculty at distributed locations. Distance learning faculty throughout the University System of Georgia were invited by institutional distance learning administrators to participate in an online survey. The questionnaire asked them to list what measures they use to address academic dishonesty in their online courses. Twelve experienced online faculty at public colleges in Georgia comprised a sample representing a variety of disciplines including economics, education, English, history, mathematics, and sociology.

A voluntary self-administered online questionnaire was distributed through administrator list-serves, department directors, and collected lists of expert names. The questionnaire consisted of three parts: demographic information, experience, and recommendations. Demographic information included gender, age, and education. Part two collected current job duties and experience with distance learning course development and delivery. This information was necessary to ensure that the data came from experienced experts. Part three, the primary question on the questionnaire and for the focus groups, asked for a list of all measures available to faculty

to prevent academic dishonesty in fully online distance learning courses. The questionnaire for the experienced online distributed faculty may be found in Appendix B. The survey was conducted for two weeks during the spring of 2009.

The survey of experienced online faculty from across the State of Georgia collected 17 intervention measures from 12 different instructors. Nine faculty were from the disciplines of business, economics, education, English, mathematics, psychology, and sociology. Three faculty did not identify their fields. Four faculty had masters degrees. Eight faculty had doctoral degrees. Six participants were female. The age breakdown was (1) 30-39: 3, (2) 40-49: 1, (3) 50-59: 4, and (4) 60+: 4. Table 2 summarizes the demographic data for the online survey of distributed faculty. Data from this group will be discussed in chapter 4.

Table 2

Summary Demographic Data for Distributed Faculty

Faculty	Sex	Discipline	Age	Degree
A	Male	Unknown	30-39	Doctorate
B	Female	Mathematics	60+	Doctorate
C	Male	Economics	60+	Doctorate
D	Female	English	50-59	Masters
E	Female	Psychology	30-39	Doctorate
F	Male	English	30-39	Masters
G	Male	Sociology	50-59	Masters
H	Male	Unknown	50-59	Doctorate
I	Male	Unknown	50-59	Doctorate
J	Female	Business	60+	Doctorate
K	Female	Education	40-49	Doctorate
L	Female	English	60+	Masters

Web survey of distance learning administrators, instructional designers, and trainers.

A list of the primary, secondary, and tertiary distance learning administrators for each institution was compiled from public web sites of the University System of Georgia. In addition to the institutional administrators, participants came from GeorgiaVIEW and Advanced Learning Technologies (ALT). Both GeorgiaVIEW and ALT are units within the Office of Information and Instructional Technology (OIIT) of the University System of Georgia. GeorgiaVIEW is responsible for the implementation of the Blackboard/VISTA Learning Management System used by the majority of the USG institutions. ALT has a mission to expand and improve the use of technology and e-learning in the university system and employs instructional designers to create interactive training for system-wide use. Personnel from these two organizations, together with the distance learning administrators of each institution, represent a large body of professional expertise on distance learning within the University System of Georgia. These individuals were employed by the University System of Georgia; however, some were not directly associated with a specific institution. The list of solicited participants is included in Appendix C.

The web survey of distance learning administrators was delivered through the same Internet address and was administered at the same time as the self-administered online questionnaire utilized by the distributed online faculty. Distance learning administrators were invited to participate through an email explaining the research (Appendix D). Twenty six individuals responded and identified themselves primarily as institutional administrators, though there were also technology specialists, instructional or information department directors, instructional designers, technology trainers, the GeorgiaVIEW Program Director, the GeorgiaVIEW Program Manager, and a vice president for academic affairs. The questionnaire

was open for two weeks during the spring of 2009. Table 3 summarizes the demographic data for the online survey of distributed faculty. A list of intervention measures submitted through this questionnaire will be discussed in chapter 4.

Table 3

Summary Demographic Data for Distance Learning Administrators

	Construct	<u>N</u>
Sex	Male	12
	Female	14
Age	20-29	1
	30-39	10
	40-49	6
	50-59	8
	60+	2
Degree	Bachelors	5
	Masters	17
	Specialist	1
	Doctorate	3

Recommendations from empirical and practice-based literature for both online and traditional environments. A review of the related literature revealed articles and books with recommendations for addressing academic dishonesty in both traditional and online courses. This literature consists of both practice-based and empirical studies.

Recommendations were assembled into a collective list. Recommendations intended for application in traditional courses were included if they could be adapted for use in the online environment. Six of the articles were published between 2002 and 2007. The remaining six articles and one book had publication dates between 1992 and 2000. Six items did not

specifically address online academic dishonesty or the use of technology in cheating; however, useful and/or adaptable intervention measures were extracted from each (Austin & Brown, 1999; Cizek, 1999; Davis et al., 1992; Dewey, 2000; Hollinger & Lanza-Kaduce, 1996; Johnson et al., 2004; Kasprzak & Nixon, 2004; Kibler, 1994; Kitahara & Westfall, 2007; Konheim-Kalkstein, 2006; McKenzie, 1998; Olt, 2002; Rowe, 2004)

Phase I Data Analysis. Data from phase I were used to answer the first research question: what intervention measures are available to faculty to address academic dishonesty? These data were used in the design of the phase II survey instrument. The phase I research design produced a lengthy list of methods available for addressing academic dishonesty from each of the four data sources. These recommendations were condensed and categorized through thematic analysis, a process of grouping themes found in data by giving them common codes from a coding scheme. Comments about online academic dishonesty, rather than specific methods that could be used to address it, were removed. Once a master list of useable data were generated, the methods were grouped into three categories: methods for general use, methods for use in exams and tests, and methods used to address academic dishonesty in writing-based assessments.

Phase II

Research Design. Several important problems had to be addressed in the design of the phase II questionnaire. Research questions 3-5 could only be answered by faculty with experience teaching online courses; however, information from all faculty, both those with experience teaching online and those who had only taught in the classroom, would be valuable to answer research question 2. To accommodate this, the questionnaire was designed with 2 tracks; one for experienced online faculty and one for faculty with only classroom experience. Faculty

were asked to select which of these best described themselves. The first pilot test showed that many faculty were confused about whether teaching a course with both classroom and online elements, i.e. a blended course, counted as having online teaching experience. To address this, an option was added for faculty to identify whether they had experience with blended courses; those with online and traditional components. The second pilot study showed confusion over the terms, “blended,” “hybrid,” and “web enhanced.” Since the issue of academic dishonesty is specific to assessments and not to the delivery of instructional content, the first question on the questionnaire was rewritten to ask the participants to describe themselves as someone who has taught (a) online or hybrid classes *with* online assessments, (b) traditional (classroom-based) or hybrid classes *without* online assessments, or (c) both traditional classes *without* online assessments and online or hybrid classes *with* online assessments. The distinction of having the assessment component of a class online became the defining criteria for online teaching experience in regards to academic dishonesty. If the faculty answered that they did not have experience with a class that had online assessments, they would complete a questionnaire without questions on the use of methods to address online academic dishonesty; otherwise, they would receive the complete questionnaire. This questionnaire design allowed for broad participation and data collection for research question 2 while preserving the credibility of the data for the remaining research questions.

Data were collected for research question 4 (To what extent do faculty believe intervention methods are effective?) through the use of a Likert-scale. The Likert-scale allowed faculty to evaluate the level of effectiveness of a method using the terms “low or none,” “fair,” “moderate,” “good,” “excellent,” or “don’t know.” The pilot studies identified the need to allow participants to evaluate the effectiveness of an intervention method only if they had experience

using it. This required that the levels-of-effectiveness evaluation scale be invisible until the participants confirmed that they used a specific method. Research question 3 investigated which intervention methods are used by faculty. These data were collected through a checkbox. If the respondents selected the checkbox indicating that they did use a specific intervention method, the scale evaluating the effectiveness of the method would become available. This design improved the quality of the data for research question 4 by ensuring the faculty member had knowledge of the intervention method before providing an evaluation of its effectiveness.

The list of available intervention methods came from the phase I data. Methods were grouped by general methods, methods used with online tests and exams, and methods used to address academic dishonesty in writing-based assessments. Text fields were also available to allow the participant to add other methods that were not previously captured through the phase I questionnaire.

In several cases the definitions of specific methods were unclear or were known by other terminology, e.g. Securexam Remote Proctor and Turnitin.com. Rollover links were included with definitions or explanation to clarify the intervention method. For example, one intervention measure asked if participants “use JavaScript code that prevents copying exams.” A simple definition was “This is a special computer code that may be added to each question or page of questions in an online exam. Common codes of this nature disable the right-click function on the mouse, thus making printing more difficult and/or making it more difficult to select the text to cut and paste into another document.” Participants could access this information through the rollover link text “What is this?” Definitions were provided for (a) JavaScript security codes, (b) Securexam Remote Proctor, (c) specialized browsers, (d) the Acxiom Student Identity

Verification product, and (e) plagiarism detection services. The definitions were either the common explanation of practitioners or cited text from the product companies.

Once the dissertation prospectus was approved, the application was submitted to the Institutional Review Board for approval. Approval was obtained for the phase I research with approval for the phase II research provided pending submission of the final form of the phase II instrument. Once phase I was complete and the phase II instrument was created, separate application amendments were submitted to the Institutional Review Board for the phase II research and again after each of the pilot studies. A link to the IRB approval documents was included on page 1 of the online questionnaire.

Participants. The participants of this phase of the research study included faculty members employed throughout institutions within the University System of Georgia, including two-year colleges, state colleges, state universities, regional universities, and research universities. Faculty from all 35 institutions were invited to participate; however, responses came from 28 institutions with the research universities having little or no participation. Data were collected from all faculty members including those with and without online teaching experience, adjuncts, and those with part-time employment.

After the first question, the questionnaire was divided into three sections. Section I provided demographic information on the participants for use in answering research questions 2 and 5. Section II of the questionnaire addressed research question 2 and included respondents with and without experience in online assessments. Section III addressed research questions 3 and 4. This section utilized data generated through the first phase of research and, due to the branching on the first question of the questionnaire, was answered only by faculty with experience with online assessments.

The total number of survey participants was 629. Table 4 summarizes the number of participants by their experience with online assessments. The number of participants who had experience with online assessments was 338, representing 53.7% of total responses. These individuals completed the entire questionnaire, including the section III questions regarding their use of intervention measures and how effective they believe these to be. Of the participants, 56.6% were female, 58% had Doctorate degrees, 28.1% had Master degrees, 67.1% were tenured or tenure-track faculty, 18.8% were adjuncts, 84.7% primarily taught undergraduate students, and 64.4% said they authored at least half of their course content. Detailed information of the phase II participant demographics may be found in Appendix E.

Table 4

Summary Data of Faculty Experience with Online Assessments

	Frequency	Percent	Cumulative Percent
Used Online Assessments	139	22.1	22.1
Used Traditional Assessments	291	46.3	68.4
Used both online and traditional assessments	199	31.6	100.0
Total	629	100.0	

Instrument. The phase II survey instrument was divided between an introductory email and four web pages containing the questions. This series of pages was necessary to accommodate the two tracks without confusing the participants. Research question 1 (What intervention measures are available to faculty to address academic dishonesty?) was omitted from the list of research questions in the phase II instrument to avoid confusion over the two phase requirements of the research. Table 5 outlines the complete questionnaire given to faculty with experience with online assessments. The questionnaire given to faculty without experience with online

assessments omitted page 4 (method selection and effectiveness evaluation) and moved the open-ended question for comments to page 3. The complete questionnaire may be found in Appendix F.

Table 5

Components of the Phase II Survey Instrument for Experienced Online Faculty

Page	Content
Email Announcement	Invitation and explanation of the research study
Page 1	Declaration of experience with online assessments
Page 2	Demographic questions
Page 3	Faculty beliefs regarding academic dishonesty in online classes
Page 4	Selection of methods used, effectiveness evaluation, and open-ended questions

The instrument was developed specifically for this study. Existing instruments could not accommodate multiple data sources. Neither were lists of intervention methods from practice-based and empirical literature comprehensive enough for the phase I data; therefore, this research designed the online survey instrument. The questionnaire design began with a review and analysis of similar instruments and was written based on data collected from phase I comprising a collection of expert knowledge and literature review. After initial development of the questionnaire, selected faculty members reviewed the instrument. A group of faculty and administrators with experience in questionnaire design reviewed the revised document prior to the first pilot test. The first pilot test was conducted with 18 online faculty from Middle Georgia College. Analysis of data from the first pilot test guided final revisions of the questionnaire to ensure clarity. Subsequent revisions were conducted with a second pilot distributed during the spring of 2009.

One additional feature of the online survey was the need to define and explain some of the intervention measures listed. For example, the Secureexam Remote Proctor was one of the included measures. As a relatively new hardware technology, many faculty members were not aware of this device. In order to provide a description, the use of cascading style sheets provided functionality to allow for the definition and explanation to open in a small window when the participant moved their mouse over the text “What is this.”

In addition to demographic and professional information (i.e. institution, education, discipline, etc.), the survey instrument asked questions about faculty beliefs regarding academic dishonesty, their use of intervention measures to counter academic dishonesty in online instruction, and their beliefs regarding the effectiveness of intervention measures. Open-ended questions were used to allow faculty to offer additional recommendations and explanations regarding their approach to addressing academic dishonesty.

The questionnaire was hosted on a web server at Middle Georgia College. All raw data were collected on the same machine with password-protected administrative functions. This simplified the operation and ensured that privacy was maintained as required by the guidelines of human participant research.

Data Collection. The instrument was delivered online as a voluntary self-administered survey. This method of delivery allowed the questionnaire to be widely distributed. The Internet address was distributed 3 times. The survey invitation was sent by email to the Vice President for Academic Affairs at each college and university in the University System of Georgia. This email explained the research study and was accompanied by a letter of support by Dr. Mary Ellen Wilson, Vice President for Academic Affairs at Middle Georgia College. A second invitation was sent two weeks later to the Vice President for Academic Affairs of each institution from

which no responses had been previously received. Finally, a third invitation was emailed to all distance learning administrators for the learning management system common to all institutions in the university system.

Summary. Data collection for this research study was conducted in two phases. Phase I collected data from a limited number of experienced faculty through focus groups and questionnaire responses, distance learning administrators with formal or practical experience in online course delivery, and relevant literature that provided recommendations for methods to address online academic dishonesty. Data from phase I were condensed through thematic analysis and used to answer research question 1. Phase I data provided information for a second survey instrument to be used in phase II of the research design.

Phase II utilized an original survey instrument created from phase I data. This instrument addressed research questions 2-5 and included both Likert scale and open-ended questions. The phase II survey was delivered online to faculty throughout the University System of Georgia. This was done with the assistance of the Vice President for Academic Affairs at Middle Georgia College and distance learning administrators at various institutions.

CHAPTER 4

RESULTS

Introduction

A review of the literature revealed that little research has previously been conducted on academic dishonesty in distance education courses. Research is particularly scarce regarding what faculty who teach online courses do to address the problem of academic dishonesty. This study was designed to learn what faculty beliefs are regarding online academic dishonesty, as well as measures taken to address academic dishonesty in Georgia. The specific research questions used to guide the research were:

1. What intervention measures are available to faculty to address academic dishonesty?
2. To what extent do faculty believe academic dishonesty is a problem in online classes?
3. What intervention measures do faculty use in their online courses?
4. To what extent do faculty believe intervention measures are effective?
5. How do faculty backgrounds and demographic characteristics predict the use and effectiveness of intervention measures?

To answer these questions, the research design required two separate phases of data collection. The first phase of research solely addressed research question 1 by compiling a list of methods available to faculty to detect and deter online academic dishonesty. These data were collected from 4 sources. To accomplish this, data were collected through 2 faculty focus groups, a survey of distance learning administrators throughout the state, a survey of distributed distance learning faculty, and a review of lists of methods collected from practice-based and empirically-based literature. This phase of the research was used to answer the first research question: What intervention measures are available to faculty to address academic dishonesty? Analyzed data

from phase I were also used to create the survey instrument used for data collection during phase II.

The second phase of research provided information for research questions 2-5. Data were collected through an online questionnaire created and tested specifically for this study. The online questionnaire included the list of compiled intervention methods obtained through the first phase of research. The phase II survey instrument also included demographic questions and questions for faculty regarding their beliefs about academic dishonesty in courses with online assessments and courses with traditional, classroom-based assessments.

Organization of Results

Since this study required two separate data collection periods, this chapter will discuss the findings from each phase independently. The phase I data will be additionally divided by each of the four data sources: focus groups, distributed online faculty, distance learning administrators, and relevant literature. The specific research questions addressed by each phase of data collection will be presented, followed by the associated data. Phase I investigated research question 1. Phase II investigated research questions 2-5. Data for research questions 1, 3, and 4 were descriptive in nature while data collected for research questions 2 and 5 were analyzed through both descriptive and inferential statistics.

Phase I

Research Question 1: What intervention measures are available to faculty to address academic dishonesty? Data analysis for the phase I data consisted of compiling a master list of intervention measures collected from the focus groups, distributed online faculty,

distance learning administrators, and relevant literature. Thematic analysis helped condense the list into similar themes and meanings. Repeated items and measures that had limited application for online courses, such as “require students to put away electronic devices”, were removed. Recommendations containing specific numerical percentages or lengths of time were edited to retain the primary concept of the intervention method while leaving the numeric value as an illustration. For example, one recommended method to address academic dishonesty from the distributed faculty was “long tests over 200 minutes.” This was edited to read “Make tests very long, e.g. 3 hours.” Appendices G, H, I, and J show the source of each intervention measure. Appendix K records the grouping and rewording of the compiled list into the final list of 50 available measures. The final list of measures was grouped into one of 3 categories: general, exams and tests, and writing-based assessments as presented in Table 6.

Table 6

Final List of 50 Intervention Measures Grouped by Categories

Number	Category*	Intervention Measures
1	G	Have an explicit honor code or academic integrity policy (campus or classroom)
2	G	Report cheating to administration / consistent action and diligence in all classrooms across an institution
3	G	Rotate assignments and reading requirements regularly
4	G	Distribute grades over multiple tests and projects (i.e. course grade is not determined by performance on a small number of assessments)
5	G	Require students to cooperate and/or coordinate with each other on assignments
6	G	Provide clear directions of what is and is not allowed
7	G	Educate students regarding academic dishonesty and consequences
8	ET	Proctor exams on campus
9	ET	Proctor exams at a distance (student secures appropriate proctors)
10	ET	Set time limits on assessments appropriate for the number and complexity of questions

Table 6 (Continued)

Number	Category*	Intervention Measures
11	ET	Use selective release on assessments to limit the dates when assessments are available
12	ET	Randomize questions and answers
13	ET	Deliver questions one at a time
14	ET	Do not allow students to revisit the questions during the test
15	ET	Select questions from large question banks to create different assessments for each student
16	ET	Do not reveal test once taken; provide feedback through other means
17	ET	Reveal test only after the availability window has closed
18	ET	Use JavaScript code that prevents copying exam
19	ET	Allow the use of notes and course textbook during exam
20	ET	State that textbook may not be used
21	ET	Utilize multiple, short, low-stakes assessments throughout the course
22	ET	Minimize grade weight for online quizzes and tests
23	ET	Require students to access assessments with a proctor code
24	ET	Do not use any multiple choice questions on tests
25	ET	Include essay questions in addition to multiple choice and short answer
26	ET	Do not use online quizzes (i.e. instead use written assignments, discussions, projects, portfolios, etc.)
27	ET	Use questions that involve higher order thinking, require explanations, problem-solving, and decision-making
28	ET	Include honor code statement as a question with "I agree" or "I do not agree" choices
29	ET	Use alternative versions of tests for makeup exams
30	ET	Utilize tracking data from the Learning Management System (VISTA/GeorgiaVIEW)
31	ET	Make test very long, e.g. 3 hours
32	ET	Require the use of SecureExam Remote Proctor
33	ET	Use specialized browsers that only allow access to the assessment, e.g. Respondus Lockdown Browser, SecureExam Browser
34	ET	Use identity verification software, e.g. Acxiom Student Identity Verification product
35	WBA	Use plagiarism detection service (e.g. Turnitin.com, SafeAssign)
36	WBA	Alert/warn about the use of plagiarism detection services (e.g. Turnitin.com)
37	WBA	As a prevention measure, show students methods for detecting cheating
38	WBA	Critique a paper from a "term -paper mill" to show the weaknesses of purchased papers

Table 6 (Continued)

Number	Category*	Intervention Measures
39	WBA	Remind students about plagiarism in exam directions
40	WBA	Compare vocabulary and grammar to previous writing assignments
41	WBA	Use specific, uncommon, or personalized topics for written assignments
42	WBA	Instruct students on how to cite sources
43	WBA	Impose specific instructions about paper and citation format
44	WBA	Design assignments that build upon previous assignments, requiring revision of content
45	WBA	Submit work in sections (drafts, outlines) or as a rough draft
46	WBA	Require the use of specific sources (e.g. faculty papers, specific articles)
47	WBA	Have students submit copies of sources
48	WBA	Use Google and other search engines to search for suspicious text
49	WBA	Require students to submit multiple versions of introductions to papers
50	WBA	Discuss papers over the phone after submission

*Categories: G = General, ET = Exams and Tests, WBA = Writing-based Assessments

Of the 50 collected measures, many came from each of the four data sources while others came multiple times from the same source. Items with the most redundancy were item 25 (include essay questions in addition to multiple choice and short answer) with 9 submissions, item 41 (use specific, uncommon, or personalized topics for written assignments) and 45 (submit work in sections, drafts, outlines, or as a rough draft) both with 8 submissions, and item 26 (do not use online quizzes) with 7 submissions. Of these, none was among the ten items with the highest frequency of use as reported in the next section.

Phase II

Introduction. The phase II research questionnaire was built upon phase I's list of measures available to faculty to address academic dishonesty. Phase II investigated the following research questions:

2. To what extent do faculty believe academic dishonesty is a problem in online classes?
3. What intervention measures do faculty use in their online courses?
4. To what extent do faculty believe intervention measures are effective?
5. How do faculty backgrounds and demographic characteristics predict the use and effectiveness of intervention measures?

The Phase II questionnaire was distributed throughout the University System of Georgia. Participants described their personal experience with online courses in response to the first question. Regardless of online teaching experience, all faculty were asked to respond to research question 2 regarding their personal experience with assessments. However, branching within the questionnaire allowed the remaining questions to be delivered based on a participant's experience specifically with online assessments. Faculty who had no experience with online assessments were not asked to identify intervention measures used to address academic dishonesty in online classes but did receive questions regarding their beliefs regarding academic dishonesty in traditional, classroom-based classes. Faculty with experience with online assessments were asked to complete all the questions.

Methods of analysis to address research question 2 (*to what extent do faculty believe academic dishonesty is a problem in online classes?*) included frequency, mean, standard deviation, independent samples t-tests, and One-Way ANOVA. Research question 3 (*what intervention measures do faculty use in their online courses?*) was examined primarily through frequency counts. The Likert-scale data from Research question 4 were analyzed with descriptive statistics of frequency, mean, and standard deviation. Research question 5 (*how do faculty characteristics and background predict their use of intervention measures and their belief in their effectiveness?*) required a combination of t-tests and one-way ANOVA. All statistical

analysis was conducted using a recent version of SPSS software. Thematic analysis was applied to identify patterns from the open-ended questions.

Research Question 2: To what extent do faculty believe academic dishonesty is a problem in online classes? Six questions collected data that addressed research question 2. For analysis, these questions were then grouped into three question sets based on their topic: the extent faculty are concerned about academic dishonesty, how often faculty intentionally look for cases of academic dishonesty, and the degree to which faculty work to address academic dishonesty. These questions were asked regarding courses with online assessments and courses with classroom-based assessments. Comparisons were among the three primary groups of participants: those only with experience with online assessments (OA), those only with experience with traditional assessments (TA), and those with experience in both (BOT). Data from faculty experienced with both forms of assessments (BOT) were separated into their responses for the traditional, classroom-based assessments (BOTT) and for online assessments (BOTO).

At this point in the data analysis, an error was identified in the questionnaire design. TA faculty had not been allowed to answer questions regarding their level of concern for academic dishonesty in online classes since, as faculty without online experience; their answers would have been based on perception only. However, the questionnaire design did allow OA faculty to answer questions regarding traditional courses. Future delivery of the questionnaire should improve the question branching to remove the questions regarding online courses from the TA faculty and the questions regarding traditional courses from the OA faculty. Only the BOT faculty, who had experience with online and traditional assessments, should be presented with the opportunity to answer both. To improve the accuracy of the analysis, only the data from

faculty who claimed to have experience with the particular forms of assessment were used. Data from faculty with experience in both forms of assessment delivery were used for all questions. Table 7 has been included to help illustrate which groups of faculty data were used to answer each question.

Table 7

Summary of Sources of Question Data

Question Set	Question	Faculty Assessment Experience		
		OA	TA	BOT
1	To what extent are you concerned about academic dishonesty in your traditional/classroom-based course(s) (i.e. class with no online assessments)?		X	X
1	To what extent are you concerned about academic dishonesty in your online/hybrid course(s) (i.e. class WITH online assessments)?	X		X
2	How often do you intentionally look for cases of academic dishonesty in your traditional/classroom-based course(s)?		X	X
2	How often do you intentionally look for cases of academic dishonesty in your online/hybrid course(s)?	X		X
3	To what degree do you work to address academic dishonesty in your traditional/classroom-based course(s)?		X	X
3	To what degree do you work to address academic dishonesty in your online/hybrid course(s)?	X		X

Each question set provided 4 groups of data: OA, TA, BOT-traditional (BOTT), and BOT-online (BOTO). The groups within each set were compared in 6 combinations to identify the significant differences in their means – BOTT/TA, BOTT/OA, BOTO/OA, BOTO/TA, BOTT/BOTO, OA/TA.

In the first question set (the extent faculty are concerned about academic dishonesty), statistical analysis showed a statistically significant mean difference at the .05 level between the responses of faculty who had experience with both traditional, classroom-based assessments ($M=3.82$, $SD=1.134$) and online assessments ($M=3.42$, $SD=1.195$). This showed that faculty with experience with both traditional, classroom-based assessments and online assessments were significantly more concerned about their online assessment activities than their classroom-based assessments. In contrast, the means of the TA faculty and OA faculty were lower and nearly identical at 3.66 ($SD=1.118$) and 3.68 ($SD=1.178$) respectively. The means for all groups of faculty responses placed levels of faculty concern closer to a “considerable degree” than a “moderate degree.” While these means are above the middle of the scale, it should also be noted that both groups of faculty responses concerning online assessments had a mode of 5 (to a great degree), the highest level of concern, having been selected by 35.1% (112) of the respondents for the question. Table 8 and Table 9 summarize the data for the extent of faculty concern for academic dishonesty.

Data from the second question set (how often faculty intentionally look for cases of academic dishonesty) showed several significant differences between means. TA faculty responses had a mean of 3.82 ($SD=1.019$). This was a significant difference to both the 3.51 ($SD=1.180$) mean of the OA faculty responses and the 3.46 ($SD=1.125$) of the BOTO faculty responses. This places faculty experienced only with traditional, classroom-based assessment at a

significantly higher level than those only with online assessments or both online and traditional, classroom-based assessments. Table 10 and Table 11 summarize the data for how often faculty intentionally look for academic dishonesty in their classes.

Table 8

Summary of the Extent of Faculty Concern for Academic Dishonesty

Faculty response groups	N	Mean	Mode	SD	Std. Error
TA	288	3.66	3	1.118	.066
BOTT	192	3.42	3	1.195	.086
BOTO	186	3.82	5	1.134	.083
OA	133	3.68	5	1.178	.102

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	15.708	3	5.236	3.956	.008*
Within Groups	1052.202	795	1.324		

* $p < .05$

Scale: 1=none or very little concern, 2=to a small degree, 3=to a moderate degree, 4=to a considerable degree, 5=to a great degree

Table 9

Significant Mean Differences in Faculty Concern for Academic Dishonesty

Comparison	Mean Difference	Std. Error	Sig	95% CI
BOTT vs BOTO	-.401*	.118	.004*	-.71, -.09

* $p < .05$, where p-values are adjusted using the Bonferroni method.

Table 10

Summary of How Often Faculty Intentionally Look for Academic Dishonesty

Faculty response groups	N	Mean	SD	Std. Error	Minimum	Maximum
TA	287	3.82	1.019	.060	1	5
BOTT	193	3.65	1.103	.079	1	5
BOTO	184	3.46	1.125	.083	1	5
OA	136	3.51	1.180	.101	1	5

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	17.440	3	5.813	4.868	.002*
Within Groups	950.598	796	1.194	4.868	.002*

* $p < .05$

Scale: 1=none or very little concern, 2=to a small degree, 3=to a moderate degree, 4=to a considerable degree, 5=to a great degree

Table 11

Significant Mean Differences in How Often Faculty Intentionally Look for Academic Dishonesty

Comparison	Mean Difference	Std. Error	Sig	95% CI
TA vs. BOTO	.359	.103	.003*	.09, .63
TA vs. OA	.308	.114	.042*	.01, .61

* $p < .05$, where p-values are adjusted using the Bonferroni method.

Analysis of the responses from the third question set (the degree to which faculty work to address academic dishonesty) are mixed. Though the means for TA (3.90, SD=1.002) and BOTT (3.79, SD=1.112) faculty responses are higher, there is not a statistically significant difference

than the OA (3.74, SD=1.079) faculty response. However, the mean of the BOTO faculty responses is 3.64 (SD=1.143). This is statistically significant at the .05 level and suggests faculty with online assessments work to a lesser degree to address academic dishonesty than do faculty with traditional, classroom-based assessments. Table 12 summarizes the data for the degree to which faculty work to address academic dishonesty in their classes.

Table 12

Summary of the Degree to Which Faculty Work to Address Academic Dishonesty

Faculty response groups	N	Mean	SD	Std. Error	Minimum	Maximum
TA	286	3.90	1.002	.059	1	5
BOTT	192	3.79	1.112	.080	1	5
BOTO	185	3.64	1.143	.084	1	5
OA	135	3.74	1.079	.093	1	5

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.673	3	2.558	2.211	.085
Within Groups	918.684	794	1.157		

$p < .05$

Scale: 1=none or very little concern, 2=to a small degree, 3=to a moderate degree, 4=to a considerable degree, 5=to a great degree

In addition to questions 1-6, all faculty were asked to provide a number to indicate the percentage of students they believe take part in academic dishonesty in their courses. Analysis was through a one-way ANOVA. Comparisons among the three groups of participants – OA, TA, and BOT faculty – revealed a significant difference in responses when measuring their belief in the incidence rate of academic dishonesty in their respective courses. TA faculty had the lowest mean of 15.09 (SD=15.277) as compared to the OA faculty's mean of 21.12 (SD=21.636)

and the BOT faculty's mean of 24.91 (SD=24.320). Table 13 and Table 14 summarize the data for faculty belief of the incidence rate of address academic dishonesty in their classes.

Table 13

Descriptive Statistics and ANOVA Results for Belief of Incidence Rate

Faculty response groups	N	Mean	Std. Deviation	Std. Error	95% CI for Mean	
					Lower Bound	Upper Bound
OA	128	21.12	21.636	1.912	17.33	24.90
TA	279	15.09	15.277	.915	13.29	16.89
BOT	179	24.91	24.320	1.818	21.32	28.49
Total	586	19.41	20.280	.838	17.76	21.05

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10977.133	2	5488.567	13.935	.000*
Within Groups	229618.205	583	393.856		

*p<.05

Table 14

Significant Mean Differences in Results for Belief of Incidence Rate

Comparison	Mean Difference	Std. Error	Sig	95% CI
TA vs. OA	-.6.024	2.119	.014*	-11.11, -.94
TA vs. BOT	-9.812	1.901	.000*	-14.37, -5.25

*p < .05, where p-values are adjusted using the Bonferroni method.

The means for incidence rate broken down by institution varied widely (see Table 15). South Georgia College had the lowest belief in the percentage of academic dishonesty in online courses with a mean of 10.86 (SD=12.253), while Georgia Perimeter College had the highest mean of 34.23 (SD=26.602). Means did not appear to be related to the number of records. The five institutions with the highest number of responses were as follows: Columbus State University (N=47): 15.89, Valdosta State University (N=53): 17.11, Dalton State College (N=38): 17.82, Middle Georgia College (N= 36): 20.19, and Georgia Southern University (N=52): 25.33. Atlanta Metro College, Darton College, Georgia State University, Waycross College, and Armstrong Atlantic State University had fewer than 5 responses and were not included in these results.

One final question addressed faculty concern for academic dishonesty. Faculty were asked to indicate if they believed online classes had more, the same, or less academic dishonesty than traditional classes. Responses were nearly identical for both groups of faculty (those with online assessment experience and those without). However, 96.5% of respondents selected either the same (52.5%) or more (44%) academic dishonesty than traditional classes. Only 3.4% selected that they believed online courses had less cheating than classroom-based courses.

Table 15

Analysis of Belief of Incidence Rate in Online Courses by Institution

	N	Mean	Std. Deviation	Std. Error	Min.	Max.
South Georgia College	7	10.86	12.253	4.631	0	30
ABAC	12	11.33	13.262	3.828	1	50
Augusta State U	24	13.00	12.847	2.622	0	50
Southern Polytechnic State U	32	15.22	18.850	3.332	0	100
Columbus State U	47	15.89	15.849	2.312	0	70
Savannah State U	8	16.25	16.202	5.728	5	50
College of Coastal GA	16	16.63	18.264	4.566	1	70
Valdosta State University	53	17.11	19.809	2.721	0	100
Georgia Gwinnett College	14	17.57	20.293	5.424	1	75
Dalton State College	38	17.82	18.899	3.066	0	85
NGCSU	33	18.73	20.275	3.529	0	95
Macon State U	25	19.08	20.843	4.169	0	75
Gordon College	29	19.93	23.074	4.285	1	80
Middle Georgia College	36	20.19	17.440	2.907	1	80
U of West Georgia	21	20.48	19.994	4.363	5	80
Georgia Highlands College	31	21.19	25.757	4.626	1	100
East Georgia College	15	22.00	21.196	5.473	0	80
Medical College of Georgia	6	22.50	16.047	6.551	0	50
Bainbridge College	15	23.47	21.781	5.624	1	75
GCSU	15	24.40	24.047	6.209	1	75
Georgia Southern U	52	25.33	22.783	3.159	0	100
GSWU	27	26.67	26.602	5.120	5	90
Georgia Perimeter College	13	34.23	26.602	7.378	5	90
Total	569	19.57	20.505	.860	0	100

Research Question 3: What intervention measures do faculty use in their online courses? Data pertaining to research question 3 were analyzed through frequency counts. Only faculty with experience delivering online assessments ($N=338$) were presented with the opportunity of selecting the intervention measures they use for online assessments. Of these, 29 did not complete the questionnaire beyond page 3 – just before the selection of intervention measures. Therefore, the total number of faculty with online experience contributing to the data were 309.

The use of intervention measures varied widely. Respondents selected item 6 (provide clear directions of what is and is not allowed) as the most used measure with 268 (86.7%) indicating they incorporated it in their online assessments. The least used measure, item 32 (require the use of Secureexam Remote Proctor), was selected by only 9 (1.4%) of respondents. As presented in Table 16, each of the 10 intervention measures with the highest use were utilized by over 50% of the respondents. Table 17 reports the 10 least used intervention measures on the questionnaire. An analysis of the list of general, exam and tests, and writing-based assessment intervention measures may be found in Appendices L, M, and N respectively.

Table 16

Summary Data of the 10 Most Used Intervention Measures (Ranking 1-10)

Rank	Intervention measures	N=309	
		Frequency	Percent
1	6. Provide clear directions of what is and is not allowed	268	86.7
2	4. Distribute grades over multiple tests and projects (i.e. Course grade is not determined by performance on a small number of assessments)	260	84.1
3	7. Educate students regarding academic dishonesty and consequences	251	81.2
4	1. Have an explicit honor code or academic integrity policy (campus or classroom)	250	80.9
5	10. Set time limits on assessments appropriate for the number and complexity of questions	229	74.1
6	11. Use selective release on assessments to limit the dates when assessments are available	221	71.5
7	12. Randomize questions and answers	207	67
8	3. Rotate assignments and reading requirements regularly	193	62.5
9	19. Allow the use of notes and course textbook during exam	176	57
10	8. Proctor exams on campus	175	56.6

Table 17

Summary Data of the 10 Least Used Intervention Measures (Ranking 41-50)

Rank	Intervention measures	N=309	
		Frequency	Percent
41	26. Do not use online quizzes (i.e. instead use written assignments, discussions, projects, portfolios, etc.)	67	21.7
42	9. Proctor exams at a distance (student secures appropriate proctors)	64	20.7
43	28. Include honor code statement as a question with "I agree" or "I do not agree" choices	56	18.1
44	18. Use JavaScript code that prevents copying exam	49	15.9
45	24. Do not use any multiple choice questions on tests	48	15.5
46	23. Require students to access assessments with a proctor code	27	8.7
47	33. Use specialized browsers that only allow access to the assessment, e.g. Respondus Lockdown Browser, SecureExam Browser	23	7.4
48	31. Make test very long, e.g. 3 hours	22	7.1
49	34. Use identity verification software, e.g. Acxiom Student Identity Verification product	10	3.2
50	32. Require the use of Secureexam Remote Proctor	9	2.9

Research Question 4: To what extent do faculty believe intervention measures are effective? Before analyzing the data for research question 4, it was necessary to determine which statistical tests to use. The effectiveness scale for the intervention measures on the questionnaire

was based on a standard Likert scale ranging from Excellent (5) to Low or none (1). Research and statistics literature discuss the problems with making incorrect assumptions about Likert scale data as explained in the following statement by S. Jamieson (2004):

Likert scales fall within the ordinal level of measurement. That is, the response categories have a rank order, but the intervals between values cannot be presumed equal. The legitimacy of assuming an interval scale for Likert type categories is an important issue, because the appropriate descriptive and inferential statistics differ for ordinal and interval variables and if the wrong statistical technique is used, the researcher increases the chance of coming to the wrong conclusion about the significance (or otherwise) of his research. (p. 1217)

Fife-Schaw (1995) recommends addressing this issue by analyzing data with both tests for ordinal and interval data; however, he also states that with appropriate ordinal data “you will arrive at the same conclusions you would have using more appropriate tests.” (p. 47) For the purpose of this research, the Likert scale responses of the effectiveness of intervention measures will be analyzed using cell sizes, means, standard deviations, and ranking. These statistics indicate the central tendency of faculty beliefs rather than their exact strength or weight.

Of the 10 items with the highest means of effectiveness, Item 23 (require students to access assessments with a proctor code), ranked the highest with a mean of 4.33 (SD=1.387); however, it should be noted that the *N* for this item was only 27 (4.3%). Item 8 (proctor exams on campus) was the second highest with a mean of 4.32 (SD=.840). This item is also notable as having a high *N* of 174 (56.3%) and a standard deviation of .840, the lowest of all items. When broken down by type, 6 of the 10 items with the highest means were from the category of measure used for exams and tests, 3 were for writing-based assessments, and 1 was a general

measure. Table 18 summarizes the data for the 10 items with the highest means.

Item 20 (State the textbook may not be used) had the lowest mean of 2.74. The six measures with the lowest evaluation (45-50 in rank order) all had low numbers of use (N equals between 14-66). However, low use was not consistent with all of the measures with the lowest evaluations. Item 7 was ranked 42 in evaluation with an N of 247 and Item 1 was ranked 44 with an N of 246. The use of honor codes were the topics for both Item 1 and 28; however, Item 1 was used by 246 of the faculty while Item 28 was only used by 54. Both items had very low ratings of effectiveness of 3.31 and 2.98 respectively. It should be noted that only the lowest four items had a rating below 3, the middle point of the scale. Table 19 summarizes the data for the 10 items with the lowest means. A report on the effectiveness of all questionnaire items may be found in Appendix O.

Table 18

Effectiveness Rating of the 10 Intervention Measures with the Highest Means

Rank by Mean	Intervention measure	N	Mean	SD
1	23. Require students to access assessments with a proctor code	27	4.33	1.387
2	8. Proctor exams on campus	174	4.32	.840
3	24. Do not use any multiple choice questions on tests	46	4.28	1.328
4	4. Distribute grades over multiple tests and projects (i.e. Course grade is not determined by performance on a small number of assessments)	254	4.07	.974
5	15. Select questions from large question banks to create different assessments for each student	122	4.05	1.142
6	29. Use alternative versions of tests for makeup exams	144	4.05	.941
7	41. Use specific, uncommon, or personalized topics for written assignments	121	4.03	.966
8	35. Use plagiarism detection service (e.g. Turnitin.com, SafeAssign)	103	4.02	1.171
9	26. Do not use online quizzes (i.e. instead use written assignments, discussions, projects, portfolios, etc.)	65	4.02	1.111
10	44. Design assignments that build upon previous assignments, requiring revision of content	113	3.97	1.022

Table 19

Effectiveness Rating of the 10 Intervention Measures with Lowest Means

Rank by Mean	Intervention measure	N	Mean	SD
41	2. Report cheating to administration / Consistent action and diligence in all classrooms across an institution	167	3.47	1.430
42	7. Educate students regarding academic dishonesty and consequences	247	3.45	1.251
43	39. Remind students about plagiarism in exam directions	98	3.42	1.243
44	1. Have an explicit honor code or academic integrity policy (campus or classroom)	246	3.31	1.435
45	49. Require students to submit multiple versions of introductions to papers	16	3.06	1.769
46	50. Discuss papers over the phone after submission	14	3.00	1.961
47	28. Include honor code statement as a question with "I agree" or "I do not agree" choices	54	2.98	1.584
48	31. Make test very long, e.g. 3 hours	22	2.86	1.670
49	38. Critique a paper from a "term paper mill" to show the weaknesses of purchased papers	14	2.79	1.311
50	20. State that textbook may not be used	66	2.74	1.362

Research Question 5: How do faculty backgrounds and demographic characteristics predict the use and effectiveness of intervention measures? Analysis for research question 5 investigated the data from the demographic questions on sex and age (5 groups). It also looked at

the background questions on the respondent's highest degree (10 groups), institution (24 groups), discipline (8 groups), teacher type, i.e. part-time, full-time, etc. (5 groups), and the degree to which they authored their own course content (4 groups). ANOVA statistical tests were run to find which of the methods were most likely to be used and how independent groups rated the effectiveness of each method. Analysis of the data for this research question required up to 100 tests – 50 regarding the use of the method and 50 regarding the rating of effectiveness. Due to the large number of statistical tests performed, the chance of a type 1 error was greatly inflated (Glass and Hopkins, 1984; p. 325). To address this inflation of the type 1 error rate, an alpha of .001 was adopted. While this alpha level was more conservative than the .05 or .01 levels typically employed, this alpha was sufficient to detect a medium size effect ($d=.50$) with a power of .828 for the sample sizes found in this study (Cohen, 1988).

Initially, a one-way ANOVA was to be performed to identify if a faculty member's degree level suggests a difference in their use of the intervention measures or their belief in their effectiveness. Respondents had been given the choices of Associates, Bachelors, Masters, Masters of Fine Arts, Specialist, Doctorate (ABD), Doctorate, Medical, and Judicial. Several of the degree choices had a count of less than 5. To accommodate the low counts in these categories, the data were recoded into two categories – Masters ($n=81$) and Doctorate ($n=212$). Faculty who had not completed their dissertations ($n=20$) were included with the Doctorate level. Associate, Bachelor, Master of Fine Arts, Specialist, Medical and Judicial degrees were not included in the recode due to the variations and specializations of their degrees. Condensing the faculty degree data into two groups allowed an Independent t-test to be used. This analysis revealed significance with 7 different measures out of 100 tests. In the case of each of these, faculty with doctorates were more likely to use intervention measures than faculty with masters

degrees. However, in consultation with Dr. Bryan Griffin, it was determined that the small cell sizes would be insufficient to provide reliable analysis (personal communication, January 28, 2011).

Data were collected regarding faculty member's positions. Categories were (a) graduate student, (b) adjunct/temporary/part-time, (c) non-tenure-track, full-time, (d) tenure-track, full-time (not tenured), and (e) tenured, full-time (tenured). No graduate students participated in the survey. Using a one-way ANOVA, no significant difference was found when comparing groups independently. No significant difference was found when data were grouped by adjunct/temporary/part-time faculty as compared to all other full-time faculty. Finally, no significant difference was found when comparing tenured faculty to all other faculty types. Each faculty characteristic required 100 tests to identify predictive factors on the use and effectiveness rating for each of the 50 intervention measures.

Analysis proceeded with the independent variables of sex, age, discipline, institution, and degree of authoring of course content by ANOVA. No significant difference was found with any of these variables in regard to the use or the rating of effectiveness of any intervention measure.

Other Findings. The questionnaire allowed faculty to give open comments on any topic. Of the 631 total responses, 137 respondents took advantage of this opportunity and entered meaningful comments. These comments filled over 25 pages. After careful thematic analysis, it was determined that 73 statements offered confirmation "there is a serious problem with academic honesty in on-line courses" (Respondent #374):

- 35 submissions discussed pedagogy: "I believe it is very difficult for students to be academically dishonest on well-designed course work that shows their thinking and work processes rather than just an end product" (Respondent #560);

- 32 submissions focused on plagiarism: “It can be mitigated with face-to-face proctoring on exams, but papers are a real issue. You can try to educate students on what is considered cheating, but you will still receive sections of the paper that have been copied. Maybe not even from a purchased paper, but straight off Wikipedia” (Respondent #81);
- 30 submissions were affirmations of the use or effectiveness of specific intervention measures: “I give numerous on-line and other kinds of assessments, and collectively they account for only a very small proportion of the course grade” (Respondent #142);
- 8 submissions statements specifically addressed concern over how higher education administrators address or support faculty with the problem: “Students who are caught cheating are seldom punished by the administration” (Respondent #288);
- 6 submissions faculty had strong statements that online courses should not exist: “Most on-line courses are bogus. They're diploma-mill quality. They're simply a cheap way for administrators to add FTE's and student numbers” (Respondent #195).

The frustration over academic dishonesty was evident from the comments of several respondents. Respondent #355 expressed frustration over cheating, other faculty, and administrators.

It is SO easy for students to cheat because so FEW teachers check behind them and then, if the student is caught, the administration is SO reluctant to pursue the issue. Seems that students AND administration want detection to go away.

Respondent #575 expressed similar frustration with the ability of students to plagiarize using new technologies and the lack of administrative support.

The availability of the internet, by laptops and smartphones, makes cheating not only likely, but probable. Assignments designed to encourage critical thinking and analysis are often plagiarized wholesale from "cheat" sites or from articles available on line. It is quite discouraging as I believe that we are, in turn, cheating our students by permitting this to continue, and that we do not have stringent guidelines requiring faculty to pursue penalties already in effect without tremendous cost of time and energy--often to be overturned by administrative personnel. It is a widespread problem.

In addition to expressing frustration over cheating and lack of administrative support,

Respondent #374 also voiced concern over the motivation for online course work.

I think there is a serious problem with academic honesty in on-line courses. I also think there is little administrative concern over it. The administrative motivation for providing on-line classes appears to be enrollment/money motivated rather than educationally/pedagogically concerned.

Table 20 summarizes the thematic analysis.

Table 20

Thematic Analysis of Respondent Comments

Theme	Number of Responses
Confirmation that academic dishonesty is a problem in online courses	73
Discussion of pedagogical approach	35
Specifically concerned about plagiarism	32
Affirmation of use or effectiveness of intervention measure(s)	30
Concern over verification of who is taking an online course	12
Advocates the proctoring of all exams	9
Concern over administrative support	9
Recounted a specific incidence of academic dishonesty	8
Advocates the use of Turnitin.com (named specifically)	6
Advocates the elimination of online courses	6
Request to see research findings	3
Frustration over academic dishonesty	3
Statements regarding learning management system	2
Belief that a stated intervention method was not effective	1

Summary

Analysis of the data from this study provided a master list of 50 intervention measures taken from faculty focus groups, online faculty, distance learning administrators, and empirical and practice-based literature. Faculty's use and belief in the effectiveness of the intervention

measures was measured in the research questionnaire along with the demographic of the respondents. The questionnaire also included questions measuring faculty concern for academic dishonesty in courses with traditional assessments and those with online assessments. Results produced a measure of the extent that faculty believe academic dishonesty is a concern in distance learning and traditional, classroom-based courses. Faculty experienced with online assessments have a greater concern for cheating than faculty experienced only with traditional, classroom-based assessment, but feel they look for it and work to address it to a slightly lesser degree. The survey also produced a measure of the extent each of the 50 intervention measures were used and a ranking of their effectiveness. Finally, though a small group of measures did show significance, the analysis of the data regarding faculty characteristics and backgrounds did not reveal any patterns or systematic responses. Therefore, it is easy to generalize that faculty characteristics and backgrounds do not predict the use and rating of effectiveness of the intervention measures.

These findings have implications for higher education and distance learning administrators. A discussion of the findings from each research question follows in chapter 5.

CHAPTER 5

DISCUSSION

Introduction

This chapter presents the findings, discussion, and implications of this study, as well as recommendations for future research. The chapter includes a summary of the study and a discussion of findings relevant to each research question. The discussion includes a statement of each finding from the results and the potential implications for distance learning administrators, instructional designers, and online faculty. The chapter ends with recommendations for future research.

Summary of the Study

Research on academic dishonesty focuses primarily on the traditional classroom environment (Bowers, 1964; Kisamore, Stone & Jawahar, 2007; McCabe, Butterfield, & Treviño, 2006; McCabe & Treviño, 1997; Whitley, 1998). Research that specifically addresses online instruction support that it is prevalent (Kennedy, Nowak, Raghuraman, Thomas, & Davis, 2000); however, no empirical literature was found that identifies which measures are available to faculty to address cheating or investigates the extent to which faculty are currently using these measures to detect and deter academic dishonesty.

The primary purpose of this study was to investigate faculty beliefs regarding online academic dishonesty and the measures taken to address academic dishonesty in Georgia. This research was conducted in order to provide information to faculty and distance learning administrators. Information from this study will help form policies and procedures for the design, development, and facilitation of online courses. With the rapid growth of online learning (Allen

& Seamen, 2010), faculty and administrators must ensure the integrity of their institution's primary mission, teaching and learning. To fully address the primary purpose of this study, the following research questions were used to guide the research:

1. What intervention measures are available to faculty to address academic dishonesty?
2. To what extent do faculty believe academic dishonesty is a problem in online classes?
3. What intervention measures do faculty use in their online courses?
4. To what extent do faculty believe intervention measures are effective?
5. How do faculty backgrounds and demographic characteristics predict the use and effectiveness of intervention measures?

This research was divided into two phases. Phase I addressed research question 1 by investigating which measures were available to faculty. Data were collected through focus groups, surveys, and a review of practice-based literature. Phase II addressed the remaining research questions by utilizing the data collected in phase I to create a questionnaire distributed to faculty throughout the University System of Georgia. Online faculty were asked to indicate which measures they use to address academic dishonesty and to rate their belief in each one's effectiveness. Participating faculty were from 24 of the 35 higher education institutions in the University System of Georgia and included questions for both faculty who did and did not have experience with online assessments.

Discussion

Intervention Measures. This study generated a list of 50 measures that could be used to address academic dishonesty (Appendix P). This list is more comprehensive than previous recommended lists from the body of literature (Austin & Brown, 1999; Cizek, 1999; Davis et al.,

1992; McKenzie, 1998; Olt, 2002; Rowe, 2004). It should be noted that 22 of the 50 items only appeared once in the raw data. This means that these items were only suggested by one of the four data sources. If any one of the four data sources had not been included, a group of intervention methods would not have been collected. This affirms the inclusion of all four data sources in the research design. The sources of each item are presented in Appendices G, H, I, and J. Inclusion and further research on each of these items in the empirical literature would be useful to online faculty.

It should be noted that the items on the list vary greatly in regard to the difficulty and cost of implementation. Many measures could be easily and immediately used by most faculty by simply making the appropriate settings in the learning management system. For example, regarding faculty who use online tests and exams, randomizing questions and answers, delivering questions one at a time, and using conditional settings to limit test availability all require only quick adjustments to quiz settings in the common delivery platforms. It is possible that faculty who are not currently using these features are not aware of their existence or how to make the changes. This supports requiring training of faculty and the need for the assistance of instructional designers and course developers.

The existence of this list of intervention measures has the potential to improve the way distance learning administrators address academic dishonesty by establishing policies requiring all online courses to include specific intervention measures. For example, it could be required that some or the entire general category of items be implemented before a distance learning course is taught. An additional example would be that Item 2 (report cheating to administration / consistent action and diligence in all classrooms across an institution) could be encouraged by being emphasized in communications from administrators. Measures that are more logistically

difficult or time consuming, e.g. proctoring exams on campus, might require the dedication of institutional resources to equip and operate a common testing center. Measures that require budgetary commitment, e.g. the purchase of Turnitin.com or Secureexam Remote Proctor, should be discussed by faculty, instructional designers, and administrators to determine how uniformly these methods would be used in order to maximize their cost-effectiveness.

Dissemination of this list to faculty, instructional designers and distance learning administrators could help promote awareness of ways to detect and deter academic dishonesty in online courses. Methods of dissemination could include list-serves, conference presentations, and the publication of these findings.

Faculty Perceptions of Academic Dishonesty in Online Courses. Results of this study indicate that faculty who have experience with both online and traditional, classroom-based assessments have a higher level of concern for *online* academic dishonesty and a lower level of concern for academic dishonesty in the traditional classroom than do either group of faculty experienced only in one environment. Faculty experienced with online assessments look for academic dishonesty significantly less than faculty who have experience with traditional, classroom-based assessments. This study does not provide information that would explain this difference. It is also possible that, though faculty experienced with online assessments believe there is a greater cause for concern for academic dishonesty, the amount of added time and effort required to design courses to deter students from cheating or to detect students who are cheating is too great. This is an area for future investigation.

The means for all questions measuring the extent to which faculty believe academic dishonesty is a problem in their classes (Tables 8, 9, and 10) are well above the scale midpoint of 3. This indicates faculty have a greater than moderate level of concern for academic dishonesty.

This does not support the research by Kelley and Bonner (2005) which reported that faculty and administrators consider cheating to be a minor problem.

While studies such as Kennedy, Nowak, Raghuraman, Thomas, and Davis (2000) support the fact that academic dishonesty does occur in online courses, the low amount of empirical research measuring the prevalence of online academic dishonesty makes it impossible to identify if the range of concern reported in this study is appropriate for the extent of the problem. Further research on online students is needed to measure the prevalence of academic dishonesty with online assessments. This information will allow a better understanding of the similarity or discrepancy between faculty beliefs and actual student practice. This will also allow faculty, instructional designers, and administrators to more accurately weigh the significance of the problem and the importance of applying appropriate intervention measures. However, if these results are compared to research on the prevalence (incidence rate) of academic dishonesty in traditional courses, a large difference between faculty perception and student behavior can be seen.

Data analysis of the faculty belief in the incidence rate of academic dishonesty in their courses revealed a range of 21% (OA faculty) and 25% (BOT faculty). Due to the inability to find any direct empirical research that reports the prevalence of academic dishonesty in online courses, a direct comparison to the means of the incident rate found in this study is not possible. However, studies of the traditional classroom by Diekhoff, LaBeff, Shinohara, and Yasukawa (1999), Eve and Bromley (1981), Hetherington and Feldmen, (1964), Hollinger and Lanza-Kaduce (1996), McCabe, Butterfield, and Treviño (2006), and Whitley (1998) report a range of between 45% and 70% of students who cheat. If the assumption is made that the prevalence of academic dishonesty in the online environment falls within the same range as traditional classes,

there is a large difference between the perceptions of online faculty and student behavior. This would place the prevalence of academic dishonesty in the online environment at least twice as high as faculty believe. It is possible that the question-wording in this survey asking faculty members about academic dishonesty in their specific courses rather than all college courses may account for some of the difference in the ranges. However, it should be noted that the mean for faculty experienced only with traditional, classroom-based assessments was significantly below the actual range of student behavior as reported in the empirical literature. This suggests that faculty, regardless of their teaching environment, may be underestimating the amount of academic dishonesty taking place. Administrators are encouraged to provide leadership for their institution in raising awareness of the problem and take meaningful steps to address this behavior.

Intervention Measures for Online Courses. Instructional designers and distance learning administrators should be aware of the intervention measures currently in use by their faculty. Measures that are simple to implement, i.e. not allowing questions to be revisited and using JavaScripts that hamper the copying of exam questions, could be added to a course in minutes in some cases. Measures requiring a greater effort to implement, i.e. create large question banks, could be promoted during course development and emphasized during annual evaluations. Faculty training could also play a role in strengthening the list of most used measures to more closely mirror the list of most effective measures.

All 10 of the most used measures could be found in some form in the literature (Cizek, 1999; Kasprzak & Nixon, 2004; Konheim-Kalkstein, 2006; Olt, 2002; Rowe, 2004). However, no more than four were found together in any source. The most common in the literature was some form of proctoring exams. This list is important to instructional designers and

administrators as well as other faculty to see what this group of online faculty are actually doing in their online courses to deter and detect online academic dishonesty. However, it must be pointed out that this list does not match the 10 measures faculty identify as being the most effective as evident from the findings for Research Question 4.

Faculty Belief in the Effectiveness of Intervention Measures. No ranking or ratings of the intervention measures could be found in the literature; therefore, comparisons cannot be made to the list identified by this study. However, it can be assumed that the authors of the studies or the practice-based articles believe the measure to be effective or they would not have included them as recommendations to deter and detect academic dishonesty. The literature used as sources for intervention measures included all of the highest 10 rated measures with the exception of number 3 (do not use any multiple choice questions on tests) and number 9 (do not use online quizzes). Faculty and distance learning administrators should take note that only 2 of the 10 highest rated intervention measures – proctoring exams and distributing grades over multiple tests and projects – are included on list of the 10 most used measures. Whether this is cause for concern is unknown. If the failure to use the most effective measures more widely is making online instruction vulnerable to dishonest behavior, attention should be directed to identifying what is preventing these measures' broader adoption and how their use may be increased.

This research study did not measure the difficulty or the amount of time required by the faculty to implement any of the intervention measures. It should be noted that several of the 10 most used measures would likely be rated as requiring a relatively small amount of time or effort to implement, while several of the 10 highest rated would likely require either more preparation time (alternative versions of exams or the creation of large question banks), greater logistical

efforts (proctoring exams on campus), or employ less common pedagogical practices (not using multiple choice tests or using personalized topics for written assignments). For example, a faculty member provided with a multiple choice test by a textbook publisher may be reluctant to write essay questions or other written assignments since the latter would require a significant amount of additional time to prepare. This would be a valuable area for further research, with possible ramifications for administrative policy, the hiring of instructional design support, and faculty compensation.

In regards to which intervention measures should be used in online courses, one respondent expressed in the comments: “The most effective approach is one that combines the [intervention measures] discussed above.” An additional limitation of the questionnaire was the fact that it did not provide a means to combine and measure the effectiveness of groups of intervention measures. Future investigation of the effectiveness of combinations of intervention measures would be useful.

Predicting the Use and Effectiveness of Intervention Measures. Faculty demographic characteristics and backgrounds do not predict their use of intervention measures or their belief in their effectiveness. These findings suggest that administrators developing institutional policies regarding the preparation of online courses would not need to target specific faculty groups based on their discipline, sex, age, or any of the demographic characteristics and backgrounds collected by this research. However, it is important to note that this study did not explore several potential predictive factors. Most important would be the degree of training in online instructional delivery and the developmental support available to faculty when preparing their online courses.

The training of online faculty members and the degree to which their course development is supported by professional development personnel could potentially change the level of their concern of academic dishonesty in online courses, the measures they implement, and their beliefs in the effectiveness of the intervention measures. It should be noted that the approach to training and course development varies widely between institutions in the University System of Georgia.

Use of this finding would be limited to informing distance learning administrators that specific faculty do not need to be targeted for additional training or assistance with their course. The unpredictability of the use of measures and beliefs in their effectiveness is important to recognize. Awareness of and encouragement to use the intervention measures recorded in this study are universally needed by faculty.

Recommendations for Future Research

The researcher proposes the following areas for future research.

1. Research is needed to determine the prevalence of academic dishonesty in online courses.
2. Research is needed to ascertain what methods students use to cheat and the extent to which each is used.
3. Direct observation of online courses would be useful to determine which intervention measures are used by faculty. This could be useful to confirm faculty declarations of which measures they reportedly use.
4. Additional research is needed to ascertain the effectiveness of each of the intervention measures presented. Additionally, it would be important to determine what combinations of measures are most successful in preventing academic dishonesty.

5. Research is needed to determine why faculty with experience in online assessments look for academic dishonesty less than faculty using traditional, classroom-based assessments.
6. Additional research is needed to clarify the degree to which faculty work to address academic dishonesty in their courses.
7. Research is needed to determine the difficulty and/or amount of time required to implement each of the intervention measures.
8. Research is needed to determine the effect the training of faculty has on their use and belief in the effectiveness of intervention measures.

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APPENDIX A
FOCUS GROUP PROTOCOL

Objectives: The focus group will elicit discussion of intervention measures available to faculty to address academic dishonesty in online courses that may not be captured through survey techniques. Specific discussion areas will include:

- General intervention measures
- Measures to address plagiarism
- Measures to address cheating on fact-based assessment

Description of the participants: The focus groups will be conducted with 8 experienced online faculty members at Middle Georgia College. Participants will be divided into two groups.

Informed consent: Informed consent forms will be distributed and collected prior to the start of the focus groups.

Description of the focus group: The researcher/facilitator will meet with the participants in a classroom or conference room on the Middle Georgia College campus. After introductions, the facilitator explain that the purpose of the focus group will be to learn about intervention measures available to faculty to address academic dishonesty in online instruction. The focus group meeting will last between 20 and 40 minutes and will be tape-recorded.

Focus Group Discussion Outline: The outline will provide the framework for the focus group discussion. The focus group discussion will center on the main questions listed. Questions that are not listed may be asked as a follow up on participant responses. The introduction and concluding statements will be read to participants.

Introduction -

The purpose of this research is to study academic dishonesty in online courses. This focus group is part of the first phase of the study that will investigate what intervention measures are available to faculty to address academic dishonesty. Information you provide today will help create a comprehensive list of intervention measures that will be used in the second phase of this research. Phase 2 will investigate faculty perceptions of academic dishonesty, their use of intervention measures, the extent faculty believe intervention measures are effective, and how faculty demographics predict their use and beliefs.

I would like you to share any ideas you have learned or have implemented in your online

classes. We will not be evaluating the measures mentioned in our discussion today. For confidentiality, no information you share today will be associated with your name.

I am recording our discussion only so I can review your comments later so no information is lost. Recording will be destroyed or overwritten once the research is complete. I have allotted between 20 and 40 minutes for our discussion. I will work to guide our discussion to stay within this time frame.

Opening question -

Could each of you tell me your name, how long you have taught online, and what courses you have taught in our distance learning program?

Question #1 -

What general intervention measures have you used to deter or detect academic dishonesty in your online classes?

Question #2 -

How do you address plagiarism in your online classes?

Question #3 -

What do you do to make your online quizzes and exams more secure?

Follow-up questions will be asked, when appropriate, to gather further information on perceived changes. If fathers assert that changes have taken place, the investigator will ask them how they think the program has contributed to those changes.

Conclusion -

I would like to thank you for your participation. I want to offer you a chance to ask any questions that you might have about this research project. Do you have any questions for me?

APPENDIX B

PHASE I QUESTIONNAIRE

Part I. Demographic Information:

- Male
 Female

Highest degree:

- Masters
 Specialist
 Doctorate

Age group:

- 22-29
 30-39
 40-49
 50-59
 60+

Part 2 - Job Title and Duties

Part 3: Use the textboxes below to enter the methods available to address academic dishonesty in online courses.

Methods already cited:

- * Scramble test questions
- * Scramble test answers
- * Large question bank
- * Plagiarism detection services (e.g. TurnItIn.com)
- * Educate students regarding plagiarism
- * Design assessments as “open book” tests

- * Provide clear directions of what is/is not allowed
- * Use of no-copy JavaScript code
- * Proctor exams on campus
- * Proctor exams at a distance (student secures appropriate proctors)
- * Use calculated math questions
- * Delivery questions one at a time
- * Use assignment-based/project-based written assessments
- * Include definition of cheating and detail consequences for violation in syllabus

Please list any additional methods available to faculty to prevent academic dishonesty in fully online distance learning courses. Feel free to explain or clarify any of your submissions.

Method #1

Method #2

Method #3

Method #4

Method #5

Method #6

Method #7

Method #8

Method #9

Method #10

Other comments:

Completion and submission of this questionnaire implies that you agree to participate and your data may be used in this research.

Submit

APPENDIX C
DISTANCE LEARNING ADMINISTRATORS, INSTRUCTIONAL DESIGNERS,
AND TRAINERS

	Name	Email	Institution/Agency
1	Amy P. Willis	apwillis@abac.edu	Abraham Baldwin Agricultural College
2	Janet Weaver	jweaver@abac.edu	Abraham Baldwin Agricultural College
3	Jeanne McQuillan	jeanne.mcquillan@asurams.edu	Albany State Univ.
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5	Marie Lasseter	marie.lasster@usg.edu	ALT
6	Mark Johnson	mark.johnson@usg.edu	ALT
7	Shannon Mastopoulos	Shannon.Mastopoulos@armstrong.edu	Armstrong Atlantic State Univ.
8	Annette Ramos	Cammie.Ramos@armstrong.edu	Armstrong Atlantic State Univ.
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APPENDIX D

EMAIL INVITATION AND EXPLANATION OF STUDY

Dear Colleagues,

I am conducting a research study as part of graduate work at Georgia Southern University titled: Faculty beliefs regarding online academic dishonesty and the measures taken to address academic dishonesty in Georgia. This research will study academic dishonesty in online courses by investigating 1) what intervention measures are available, 2) faculty perceptions of academic dishonesty, 3) the use of intervention measures, 4) the extent faculty believe intervention measures are effective, and 5) how faculty demographics predict their beliefs and use of intervention measures.

I would like to ask for your assistance with the first phase of this study by identifying intervention measures available to faculty to address academic dishonesty in their online classes. I would appreciate your input on this 10 minute, no-risk, volunteer survey.

[Begin Survey](#)

This information will be available to everyone once this project is complete.

Thank you all for your help!

Darryl J. Hancock
Graduate Student, Georgia Southern University

Director of Distance Learning and Professional Development
Middle Georgia College
1100 Second St. SE
Cochran, GA 31014
478-934-3505
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APPENDIX E

SUMMARY DATA OF PARTICIPANTS FROM PHASE II SURVEY

Summary Data of Gender of Participants from Phase II Survey

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Not selected	7	1.1	1.1	1.1
Male	266	42.3	42.3	43.4
Female	356	56.6	56.6	100.0
Total	629	100.0	100.0	

Summary Data of Education of Participants from Phase II Survey

Respondent Degree

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Not selected	2	.3	.3	.3
Associate	2	.3	.3	.6
Bachelor	9	1.4	1.4	2.1
Masters	177	28.1	28.1	30.2
MFA	15	2.4	2.4	32.6
Specialist	14	2.2	2.2	34.8
Doctorate ABD	37	5.9	5.9	40.7
Doctorate	365	58.0	58.0	98.7
Medical	1	.2	.2	98.9
JD	6	1.0	1.0	99.8
Other	1	.2	.2	100.0
Total	629	100.0	100.0	

Summary Data of Age of Participants from Phase II Survey

Respondent Age

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Not selected	5	.8	.8	.8
22-29	30	4.8	4.8	5.6
30-39	102	16.2	16.2	21.8
40-49	174	27.7	27.7	49.4
50-59	208	33.1	33.1	82.5
60+	110	17.5	17.5	100.0
Total	629	100.0	100.0	

Summary Data of Years of Teaching Experience from Phase II Survey Participants

Years of Teaching Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 01-05	165	26.2	26.2	26.2
06-10	150	23.8	23.8	50.1
11-15	103	16.4	16.4	66.5
16-20	74	11.8	11.8	78.2
21-15	7	1.1	1.1	79.3
21-25	45	7.2	7.2	86.5
26-30	51	8.1	8.1	94.6
31-35	21	3.3	3.3	97.9
36-40	12	1.9	1.9	99.8
Not selected	1	.2	.2	100.0
Total	629	100.0	100.0	

Summary Data of Years of Online Teaching Experience from Phase II Survey Participants

Years of Teaching Experience Online

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	378	60.1	60.1	60.1
01-05	179	28.5	28.5	88.6
06-10	53	8.4	8.4	97.0
11-15	10	1.6	1.6	98.6
Not selected	9	1.4	1.4	100.0
Total	629	100.0	100.0	

Summary Data of Institution of Participants from Phase II Survey

Respondent Institution

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Not selected	11	1.7	1.7	1.7
ABAC	13	2.1	2.1	3.8
Armstrong Atlantic State U	1	.2	.2	4.0
Atlanta Metro College	1	.2	.2	4.1
Augusta State U	25	4.0	4.0	8.1
Bainbridge College	15	2.4	2.4	10.5
College of Coastal GA	18	2.9	2.9	13.4
Columbus State U	53	8.4	8.4	21.8
Dalton State College	38	6.0	6.0	27.8
Darton College	2	.3	.3	28.1
East Georgia College	16	2.5	2.5	30.7
GCSU	16	2.5	2.5	33.2
Georgia Gwinnett College	15	2.4	2.4	35.6
Georgia Highlands College	34	5.4	5.4	41.0
Georgia Perimeter College	14	2.2	2.2	43.2
Georgia Southern U	55	8.7	8.7	52.0

GSWU	31	4.9	4.9	56.9
Georgia State U	2	.3	.3	57.2
Gordon College	30	4.8	4.8	62.0
Macon State U	28	4.5	4.5	66.5
Medical College of Georgia	6	1.0	1.0	67.4
Middle Georgia College	40	6.4	6.4	73.8
NGCSU	35	5.6	5.6	79.3
Savannah State U	8	1.3	1.3	80.6
South Georgia College	8	1.3	1.3	81.9
Southern Polytechnic State U	34	5.4	5.4	87.3
U of West Georgia	23	3.7	3.7	90.9
Valdosta State University	54	8.6	8.6	99.5
Waycross College	3	.5	.5	100.0
Total	629	100.0	100.0	

Summary Data of Academic Discipline of Participants from Phase II Survey

Discipline

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Not selected	23	3.7	3.7	3.7
Not listed	36	5.7	5.7	9.4
Business	54	8.6	8.6	18.0
Education	64	10.2	10.2	28.1
Engineering	2	.3	.3	28.5
Health Sciences	70	11.1	11.1	39.6
Humanities	120	19.1	19.1	58.7
Sciences/Technology/ Mathematics	161	25.6	25.6	84.3
Social Sciences	99	15.7	15.7	100.0
Total	629	100.0	100.0	

Summary Data of Employment Status of Participants from Phase II Survey

Teacher Type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Graduate assistant	2	.3	.3	.3
	Adjunct/temporary/part-time	118	18.8	18.8	19.1
	Non-tenure-track, full-time	87	13.8	13.9	33.0
	Tenure-track, full-time (not tenured)	168	26.7	26.8	59.7
	Tenured, full-time	253	40.2	40.3	100.0
	Total	628	99.8	100.0	
Missing	System	1	.2		
Total		629	100.0		

Summary Data of Level of Student Taught by Participants from Phase II Survey

Grade Level Taught

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Undergraduate	527	83.8	84.7	84.7
	Graduate	60	9.5	9.6	94.4
	Equal both	35	5.6	5.6	100.0
	Total	622	98.9	100.0	
Missing	System	7	1.1		
Total		629	100.0		

APPENDIX F

PHASE II QUESTIONNAIRE

Introductory Email

To: #Name#, #institution#

I am requesting help with a survey about academic honesty in online courses. If possible, I would greatly appreciate it if you could forward this email with the survey link below to your full-time and adjunct faculty.

Thank you very much,

Darryl Hancock, Director
Division of Distance Learning
Middle Georgia College

Dear USG Faculty,

As a doctoral candidate at Georgia Southern University, I am conducting a research project titled:

Faculty beliefs regarding online academic dishonesty and the measures taken to address academic dishonesty in Georgia.

This research will study academic dishonesty in online courses by investigating

1. faculty perceptions of academic dishonesty
2. the use of intervention measures
3. the extent faculty believe intervention measures are effective
4. how faculty demographics predict their beliefs and use of intervention measures

I would greatly appreciate the assistance of all the faculty members throughout the University System of Georgia whether your courses are delivered in an online, hybrid, or traditional format. Please complete the following no-risk, volunteer survey. The questionnaire will take approximately 10-15 minutes to complete.

Begin Survey

Thank you for your help and participation in this research!

Darryl J. Hancock
Graduate Student, Georgia Southern University

Director, Division of Distance Learning
Middle Georgia College
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Cochran, GA 31014
478-934-3505
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Questionnaire Page 1

Which of the following best describes you?

I teach:

- online or hybrid classes with online assessments.
- traditional (classroom-based) or hybrid classes without online assessments.
- both traditional classes without online assessments and online or hybrid classes with online assessments.

Completion and submission of this questionnaire implies that you agree to participate and your data may be used in this research.

Submit answers and continue (button)

[IRB project H09269](http://solar.mgc.edu/survey/IRB_H09269_hancock.pdf) (link to http://solar.mgc.edu/survey/IRB_H09269_hancock.pdf)

Questionnaire Page 2

Part I - Please answer the following questions about yourself.

1. Sex:

- Male
- Female

2. Age group:

Radio buttons: 22-29, 30-39, 40-49, 50-59, 60+

3. Highest degree:

- Associate
- Bachelor
- Masters
- Master of Fine Arts
- Specialist
- Doctorate (ABD)
- Doctorate
- Medical
- Juris Doctorate
- Other:

4. Years teaching in higher education:

Drop down list: Select one 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 or more

5. Years teaching a fully online course:

Drop down list: Select one 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 or more

6. Institution:

Drop down list: Select one Abraham Baldwin Agricultural College Albany State University Armstrong Atlantic State University Atlanta Metropolitan College Augusta State University Bainbridge College Board of Regents Technology Clayton State University College of Coastal Georgia Columbus State University Dalton State College Darton College East Georgia College Fort Valley State University Gainesville State College Georgia College and State University Georgia Gwinnett College Georgia Highlands College Georgia Institute of Technology Georgia Perimeter College Georgia Southern University Georgia Southwestern State University Georgia State University Gordon College Kennesaw State University Macon State College Medical College of Georgia Middle Georgia College North Georgia College and State University Savannah State University South Georgia College Southern Polytechnic State University University of Georgia University of West Georgia USG Board of Regents/Advanced Learning Technologies Valdosta State University Waycross College

7. Discipline / subject:

Select one General area not listed Business Education Engineering Health and Human Services Humanities Social Sciences Science, Technology, and Mathematics

8. Which of the following best describes you?

Graduate assistant

Adjunct / temporary / part-time

Non-tenure-track, full-time

Tenure-track, full-time (not tenured)

Tenured, full-time

9. Which of the following best describes the design, creation, and presentation of the material in your online course?

External sources are considered any material that is not your original work.

90%-100% mine / 0%-10% external sources (i.e. publisher, institution, or colleague)

50%-90% mine / 10%-50% external sources

10%-50% mine / 50%-90% external sources

0%-10% mine / 90%-100% external sources

Uncertain

10. What level of students do you primarily teach in your online/hybrid class(es)?

Undergraduate

Graduate

Approximately equal mix of both undergraduate and graduate

11. Does your institution require you to use intervention measures (specific techniques and/or methods)

to detect and/or deter academic dishonesty? (definition This study defines academic dishonesty as the misrepresentation of cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.

Code of Academic Integrity, (2009). George Washington University. Retrieved March 16, 2009 from <http://www.gwu.edu/~ntegrity/code.html#definition>)

Yes

No

Submit answers and continue (button)

Questionnaire Page 3

Part II - Please rate how strongly you agree or disagree with each of the following statements.

1. To what extent are you concerned about academic dishonesty in your traditional/classroom-based course(s) (i.e. class with no online assessments).

None or Very Little Concern
To a small degree
To a moderate degree
To a considerable degree
To a great degree
Undecided or not applicable

2. To what extent are you concerned about academic dishonesty in your online/hybrid course(s) (i.e. class WITH online assessments).

None or Very Little Concern
To a small degree
To a moderate degree
To a considerable degree
To a great degree
Undecided or not applicable

3. How often do you intentionally look for cases of academic dishonesty in your traditional/classroom-based course(s).

Rarely / Never
Infrequently
Occasionally
Frequently
Very Frequently / Almost every relevant activity
Undecided or not applicable

4. How often do you intentionally look for cases of academic dishonesty in your online/hybrid course(s)?

Rarely / Never
Infrequently
Occasionally
Frequently
Very Frequently / Almost every relevant activity
Undecided or not applicable

5. To what degree do you work to address academic dishonesty in your traditional/classroom-based course(s)?

None to very little
To a small degree
To a moderate degree
To a considerable degree
To a great degree
Undecided or not applicable

6. To what degree do you work to address academic dishonesty in your online/hybrid course(s)?

None to very little
To a small degree
To a moderate degree
To a considerable degree
To a great degree
Undecided or not applicable

7. In a typical online/hybrid class that you teach, about what percentage of students do you believe have engaged in academic dishonesty when taking online assessments?

_____ %

8. Generally, which of the following statements represents your beliefs?

There is more academic dishonesty in online classes than in traditional/classroom-based classes.
There is about the same amount of academic dishonesty in online classes as in traditional/classroom-based classes.
There is less academic dishonesty in online classes than in traditional/classroom-based classes.

Submit answers and continue (button)

APPENDIX G

DATA FROM FOCUS GROUPS

Focus Group I

- Directions/explanation of Academic Dishonesty (AD) in Syllabus
- Repeat directions/explanation throughout course
- Use TurnItIn.com
- Change/rotate assignments regularly
- Has students submit digital pictures of themselves doing the lab assignments
- Do not reveal test once taken, provide feedback through other means
- Use of no-copy JavaScript code
- Proctor exams on campus
- Proctor exams at a distance (student secures appropriate proctors)
- Smaller quizzes more often
- Allowing the use of notes and open book
- Write higher level questions
- Randomize questions
- Large question bank
- Make very large question banks available for study in advance
- Weekly tests/quizzes less than 10% of course grade with increases percentage for proctored exams
- Study vocabulary language
- Educate students regarding plagiarism
- Remind students about plagiarism in exam directions
- Use uncommon topics when designing assignments
- Alert/warn students about the use of TurnItIn.com
- Have students submit a rough draft
- Use calculated math questions
- Delivery questions one at a time
- Consistent action and diligence in all classrooms across an institution
- Follow through with designated punishments to promote no tolerance reputation

Focus Group II

- Large question-bank for test
- Scramble questions
- Scramble answers
- Use TurnItIn.com
- Use faculty papers (original work) as topic material/source
- State expectations in syllabus
- State consequences in syllabus
- Instruct students on how to cite resources

- Make topics personal to students
- Use essay questions that target supported student opinion
- Minimize grade weight for online quizzes and tests
- State that text book may not be used
- Include discussion questions with multiple choice questions on exams
- Include analytical questions
- Set time limits for assessments
- Assign specific and/or uncommon topics for papers
- Require students to cite personal experiences
- Submit work in sections (drafts, outlines)
- Make topics specific to the discussion and/or reading of individual classes
- Allow open-book exams
- Utilize tracking features of the Learning Management System
- Use multiple versions of tests for makeup exams
- Use a variety of assessment types
- Use writing-based assignments instead of online quizzes
- Assign a low grade percentage for online quizzes
- Use conceptual questions instead of fact-based questions
- Discuss intellectual property and copyright as a class activity

APPENDIX H

DATA FROM DISTRIBUTED ONLINE FACULTY

- Occasionally talk to students in person if possible.
- Avoid multiple choice questions in tests.
- Focus on essay-based questions in tests.
- Proctored exams should be a minimum of 50% of the grade
- Put a time limit on assessments
- Do not allow students to revisit the questions.
- Require students to test in a computer lab with video monitoring. Must record the i.d. number of their computer work station.
- Design written assignments so that they are tailored to the individual student's experience (i.e. narrative essays, personal essays, etc.).
- Extensive written feedback for each stage of a long paper.
- Impose my own unique outline for their papers so that they cannot submit canned papers purchased at a paper mill.
- Students must submit their draft for each major section of the paper at regular intervals throughout the semester. Extensive written feedback for the paper is given in five stages which correspond with the major points of the outline. The students must then edit their drafts to reflect a response to the feedback. Only the final paper receives a formal grade. The feedback about the draft sections often includes back-and-forth discussion between the professor and the student (by email, discussion tool, or telephone) to help the student understand and apply theory. The student must have intimate knowledge of their work (and the thinking behind it) to engage in this interaction.
- Long test over 200 minutes.
- Give open book exams and encourage, assist, and give extra credit for students who produce a coherent study guide to use during the exam.
- Time limit [on assessments]
- Verify why they took extra time [on assessments]
- Appropriate time-limits for each online question type.
- Test at an on-campus or off-campus site.

APPENDIX I

DATA FROM DISTANCE LEARNING ADMINISTRATORS

- Turn in drafts of work at different point in the writing process.
- Use writing samples from discussions to compare to essays and other written forms of assessment.
- Time tests
- Use questions that involve higher order thinking instead of straight multiple choice
- Use project based assessments
- Incorporate mixed types of assessments into a course (quizzes, assignments, group projects, etc.) none of which are in total providing all of the grade.
- Professional practices course required by some majors includes ethical practices for practitioners and students.
- Portfolio based evaluations for some majors
- use Google and other search engines for suspicious text
- Require students to access Vista assessments with a proctor code
- Use selective release on assessments to limit the dates when assessments are available
- Set time limits on assessments
- Secure Exam Browser
- Recommendation to put away all electronic devices
- Include honor code statement as first or last question of an online exam with a yes, I agree or no, I don't agree, and comments answer options.
- Timed test questions
- Use other assessment tools other than tests. For example, term papers, weighted discussion questions, group projects. Students led learning modules, and Internet scavenger hunts.
- Equally distribute grades over several tests and projects. Placing a high percentage on one or two tests increases the potential for cheating.
- Evaluate student learning using multiple types of assessments.
- Get to know students and their writing style through regular discussion postings.
- Secureexam Browser
- Clear course grading rubric.
- Engage students so that you "know" them and the "know" you.
- Proctored exams on campus
- Turnitin service
- Plagiarism detection services (TurnItIn)
- Proctor exams on campus
- Delivery questions one at a time
- Scramble test questions
- Large question bank
- Design written assignments so that they are tailored to the individual student's experience (i.e. narrative essays, personal essays, etc.).
- Design assignments that build upon previous assignments, requiring revision of content

- When a student is caught cheating, I give them a zero for the assignment and explain why they received the zero. I explain to them that if they are caught again they will receive an 'F' for the course and academic affairs will be made aware of the problem.
- New technologies are emerging which require identity verification for fully online students
- Example - Acxiom Student Identity Verification product.
- Cameras installed in relation to the students being proctored which are monitored by a proctoring service.
- Specialized browsers that only allow access to the assessment. Example - Respondus Lockdown Browser, SecureExam
- Use Question Sets
- Include paragraph questions
- Use lots of low-stakes quizzes
- Include some similarly-worded questions with a slight, meaningful variation
- Set quiz settings to not return results until the assessment availability window is closed
- Set the time limit knowing that there is no way the students can complete the test in the time allowed...that puts pressure on students because if they stop to cheat on one question they won't have enough time to complete the test so they plod on. The instructor knows that they won't be able to complete the test.
- When using matching questions, put more items in column B than you have in column A which negates the process of elimination
- In Math questions include in the answers the "figure" that they would get if they didn't take the process to its conclusion or if they missed a step.
- Personalize questions; use questions that require the students to relate to their personal life or work environment.
- Use assessment tools that assess the process rather than the product
- Self assessment using pre-designed rubrics
- In case of online traditional testing use a series of short assessments and spread them throughout the semester rather than one or two major exams. (If they manage to get help once, they cannot do it all the time)
- Make the number and complexity of questions proportionate with the test duration
- Use collaborative assessments where the students evaluate each other's input (instructor can provide assessment forms)
- Use portfolio assessment where the students provide artifacts to show their learning over a period of time
- Write a reflection piece on each artifact explaining why it represents an improvement in their performance.
- Review tracking data
- Scrambling test questions/answers
- Large question banks: question sets (pulling 50 of 100 questions, each student receives different test)
- Scramble test questions
- Scramble test answers
- Proctor exams on campus

- Plagiarism detection services
- Use of no-copy JavaScript code
- Do not use online quizzes (multiple choice, true/false, matching) to assess knowledge;
- Limit the questions/quiz to 5-15 questions. Give them a study guide to help them prepare for the quiz.
- If your quiz consists of 10 questions, give them 20 questions as a study guide, and then randomize the questions and the answers for the quiz (question set).

APPENDIX J

DATA FROM LITERATURE

1. Scramble test questions
2. Scramble test answers
3. Proctored exams
4. Summarize papers in class after they have been turned in.
5. Small class sizes
6. Unique makeup exams
7. Use more essays
8. Include essays on multiple choice exams
9. Use assignment-based/project-based/written assessments
10. Student-centered active learning – essays, projects, portfolios
11. Use of no-copy JavaScript code
12. Design for open book exams
13. Design for group assistance
14. “hot line” to report cheating
15. Discuss assignments with students synchronously after submission
16. Delivery questions one at a time
17. Use new types of assignments – web pages, brochures, databases, etc.
18. Use calculated math questions
19. Submit assignments in sections; Assess progress throughout the entire research process
20. Submit notes and rough drafts
21. Submit copies of sources
22. Require specific sources (course textbooks and other content) as source material
23. Require several possible introductions to papers
24. Require students to take notes with a database program and submit with assignment
25. Provide specific instructions about bibliography and footnoting styles
26. Internet keyword search
27. Plagiarism detection services (e.g. TurnItIn.com)
28. Alert/warn students about the use of Plagiarism detection services (e.g. TurnItIn.com)
29. Include definition of cheating and detail consequences for violation in syllabus
30. Review institution’s academic integrity policies (definitions, punishments, faculty responsibilities)
31. Instructor demonstrate appropriate Internet research
32. Provide examples of acceptable and unacceptable examples of ways to cite information
33. Critique one of the papers from a “term paper mill”
34. Demonstrate faculty methods for detection
35. Have an explicit honor code (campus or classroom)
36. Have an explicit academic integrity policy (campus or classroom)
37. Students could be asked to read and sign a policy statement like an honor code or integrity policy at the beginning of the course.
38. Student produced video assignments
39. Student produced audio assignments
40. Report cheating to administration

41. Design test that are not trivial or overly difficult
42. Provide clear directions of what is and is not allowed
43. Remote proctoring hardware (e.g. Secureexam Remote Proctor)
44. Supervised, on-site, or interactive video finals that count a high percent of the course grade
45. Change assignments/tests each semester.
46. Use personalized assignments and verification software.
47. Give open-book (resource) practical application exams.
48. Require interaction with instructor via e-mail and through group forums.
49. Require explanations, problem-solving, choices, and decision-making
50. Utilize multiple, short assessments throughout the course
51. Require cooperation and coordination among students
52. Time limits for assessments
53. Large question pools for randomized assessments
54. Use courseware tracking features to document time, duration and number of attempts
55. Write mastery-type assessments which require students to know the subject matter
56. Require students to relate the subject matter to their own personal/professional/life experiences
57. Require higher order thinking skills (application, evaluation, synthesis) rather than mere factual recall.
58. Avoid making the longest answer the correct choice on multiple choice tests
59. Avoid using words such as “always” and “never” in multiple choice tests
60. Rotate assignments and reading requirements regularly

APPENDIX K

CONDENSING OF PHASE I DATA

	Original recommended measure	Final selection and wording
1	<ul style="list-style-type: none"> • Have an explicit honor code (campus or classroom) • Have an explicit academic integrity policy (campus or classroom) • Students could be asked to read and sign a policy statement like an honor code or integrity policy at the beginning of the course. • Have an explicit academic integrity policy (campus or classroom) 	Have an explicit honor code or academic integrity policy (campus or classroom)
2	<ul style="list-style-type: none"> • Report cheating to administration • Consistent action and diligence in all classrooms across an institution • When a student is caught cheating, I give them a zero for the assignment and explain why they received the zero. I explain to them that if they are caught again they will receive an 'F' for the course and academic affairs will be made aware of the problem. • Follow through with designated punishments to promote no tolerance reputation 	Report cheating to administration / Consistent action and diligence in all classrooms across an institution
3	<ul style="list-style-type: none"> • Rotate assignments and reading requirements regularly • Change/rotate assignments regularly • Change assignments/tests each semester. 	Rotate assignments and reading requirements regularly
4	<ul style="list-style-type: none"> • Equally distribute grades over several tests and projects. Placing a high percentage on one or two tests increases the potential for cheating. • Evaluate student learning using multiple types of assessments. 	Distribute grades over multiple tests and projects (i.e. Course grade is not determined by performance on a small number of assessments)
5	<ul style="list-style-type: none"> • Design for group assistance 	Require students to cooperate and/or

	<ul style="list-style-type: none"> • Require cooperation and coordination among students • use collaborative assessments where the students evaluate each other's input (instructor can provide assessment forms) 	coordinate with each other on assignments
6	<ul style="list-style-type: none"> • Provide clear directions of what is and is not allowed 	Provide clear directions of what is and is not allowed
7	<ul style="list-style-type: none"> • Include definition of cheating and detail consequences for violation in syllabus • State consequences in syllabus • Review institution's academic integrity policies (definitions, punishments, faculty responsibilities) • Directions/explanation of Academic Dishonesty (AD) in Syllabus • State expectations in syllabus 	Educate students regarding academic dishonesty and consequences
8	<ul style="list-style-type: none"> • Proctor exams on campus • Proctored exams should be a minimum of 50% of the grade • test at an on-campus or off-campus site. • Supervised, on-site, or interactive video finals that count a high percent of the course grade 	Proctor exams on campus
9	<ul style="list-style-type: none"> • Proctor exams at a distance (student secures appropriate proctors) 	Proctor exams at a distance (student secures appropriate proctors)
10	<ul style="list-style-type: none"> • Set time limits for assessments • Timed test questions • Appropriate time-limits for each online question type. • put a time limit on assessments • Make the number and complexity of questions proportionate with the test duration 	Set time limits on assessments appropriate for the number and complexity of questions
11	<ul style="list-style-type: none"> • Use selective release on assessments to limit the dates when assessments are available 	Use selective release on assessments to limit the dates when assessments are

		available
12	<ul style="list-style-type: none"> • Randomize questions • Randomize answers • If your quiz consists of 10 questions, give them 20 questions as a study guide, and then randomize the questions and the answers for the quiz (question set). 	Randomize questions and answers
13	<ul style="list-style-type: none"> • Delivery questions one at a time 	Deliver questions one at a time
14	<ul style="list-style-type: none"> • Do not allow students to revisit the questions. 	Do not allow students to revisit the questions during the test
15	<ul style="list-style-type: none"> • Large question bank • Make very large question banks available for study in advance • Use Question Sets 	Select questions from large question banks to create different assessments for each student
16	<ul style="list-style-type: none"> • Do not reveal test once taken, provide feedback through other means 	Do not reveal test once taken; provide feedback through other means
17	<ul style="list-style-type: none"> • Set quiz settings to not return results until the assessment availability window is closed 	Reveal test only after the availability window has closed
18	<ul style="list-style-type: none"> • Use of no-copy JavaScript code 	Use JavaScript code that prevents copying exam
19	<ul style="list-style-type: none"> • Allowing the use of notes and open book • Allow open-book exams • give open book exams and encourage, assist, and give extra credit for students who produce a coherent study guide to use during the exam. 	Allow the use of notes and course textbook during exam
20	<ul style="list-style-type: none"> • State that text book may not be used 	State that textbook may not be used
21	<ul style="list-style-type: none"> • Utilize multiple, short assessments throughout the course 	Utilize multiple, short, low-stakes

	<ul style="list-style-type: none"> • Smaller quizzes more often • Use lots of low-stakes quizzes • In case of online traditional testing use a series of short assessments and spread them throughout the semester rather than one or two major exams. (If they manage to get help once, they cannot do it all the time) • Weekly tests/quizzes less than 10% of course grade with increases percentage for proctored exams • Limit the questions/quiz to 5-15 questions. Give them a study guide to help them prepare for the quiz. 	assessments throughout the course
22	<ul style="list-style-type: none"> • Minimize grade weight for online quizzes and tests • Assign a low grade percentage for online quizzes 	Minimize grade weight for online quizzes and tests
23	<ul style="list-style-type: none"> • Require students to access Vista assessments with a proctor code 	Require students to access assessments with a proctor code
24	<ul style="list-style-type: none"> • Avoid multiple choice questions in tests. 	Do not use any multiple choice questions on tests
25	<ul style="list-style-type: none"> • Include essays on multiple choice exams • Include discussion questions with multiple choice questions on exams • Use questions that involve higher order thinking instead of straight multiple choice • include paragraph questions • Use more essays • Focus on essay-based questions in tests. • Incorporate mixed types of assessments into a course (quizzes, assignments, group projects, etc.) none of which are in total providing all of the grade. • Use essay questions that target supported student opinion • Use a variety of assessment types 	Include essay questions in addition to multiple choice and short answer

26	<ul style="list-style-type: none"> • Do not use online quizzes (multiple choice, true/false, matching) to assess knowledge; • Use other assessment tools other than tests. For example, term papers, weighted discussion questions, group projects. Students led learning modules, and Internet scavenger hunts. • Use assignment-based/project-based/written assessments • Portfolio based evaluations for some majors • Use project based assessments • Use portfolio assessment where the students provide artifacts to show their learning over a period of time • Use writing-based assignments instead of online quizzes • Use new types of assignments – web pages, brochures, databases, etc. 	Do not use online quizzes (i.e. instead use written assignments, discussions, projects, portfolios, etc.)
27	<ul style="list-style-type: none"> • Use conceptual questions instead of fact-based questions • Student-centered active learning – essays, projects, portfolios • Include analytical questions • Write higher level questions • Require explanations, problem-solving, choices, and decision-making • Require higher order thinking skills (application, evaluation, synthesis) rather than mere factual recall. 	Use questions that involve higher order thinking; require explanations, problem-solving, and decision-making
28	<ul style="list-style-type: none"> • Include honor code statement as first or last question of an online exam with a yes, I agree or no, I don't agree, and comments answer options. 	Include honor code statement as a question with "I agree" or "I do not agree" choices
29	<ul style="list-style-type: none"> • Use multiple versions of tests for makeup exams • Unique makeup exams 	Use alternative versions of tests for makeup exams
30	<ul style="list-style-type: none"> • Use courseware tracking features to document time, duration and number of attempts 	Utilize tracking data from the Learning Management System

	<ul style="list-style-type: none"> Utilize tracking features of the Learning Management System Review tracking data verify why they took extra time [on assessments] 	(VISTA/GeorgiaVIEW)
31	<ul style="list-style-type: none"> Long test over 200 minutes. 	Make test very long, e.g. 3 hours
32	<ul style="list-style-type: none"> Cameras installed in relation to the students being proctored which are monitored by a proctoring service. 	Require the use of Secureexam Remote Proctor
33	<ul style="list-style-type: none"> Specialized browsers that only allow access to the assessment. Example - Respondus Lockdown Browser, SecureExam Secure Exam Browser 	Use specialized browsers that only allow access to the assessment, e.g. Respondus Lockdown Browser, SecureExam Browser
34	<ul style="list-style-type: none"> New technologies are emerging which require identity verification for fully online students. Example - Acxiom Student Identity Verification product. 	Use identity verification software, e.g. Acxiom Student Identity Verification product
35	<ul style="list-style-type: none"> Use TurnItIn.com 	Use plagiarism detection service (e.g. Turnitin.com, SafeAssign)
36	<ul style="list-style-type: none"> Alert/warn students about the use of Plagiarism detection services (e.g. TurnItIn.com) Alert/warn students about the use of TurnItIn.com 	Alert/warn about the use of plagiarism detection services (e.g. Turnitin.com)
37	<ul style="list-style-type: none"> Demonstrate faculty methods for detection 	As a prevention measure, show students methods for detecting cheating
38	<ul style="list-style-type: none"> Critique one of the papers from a “term paper mill” 	Critique a paper from a “term paper mill” to show the weaknesses of purchased papers

39	<ul style="list-style-type: none"> • Remind students about plagiarism in exam directions • Repeat directions/explanation throughout course 	Remind students about plagiarism in exam directions
40	<ul style="list-style-type: none"> • Study vocabulary language • Use writing samples from discussions to compare to essays and other written forms of assessment. • Engage students so that you "know" them and the "know" you. • Get to know students and their writing style through regular discussion postings. 	Compare vocabulary and grammar to previous writing assignments
41	<ul style="list-style-type: none"> • Design written assignments so that they are tailored to the individual student's experience (i.e. narrative essays, personal essays, etc.). • Use uncommon topics when designing assignments • Make topics personal to students • Assign specific and/or uncommon topics for papers • Make topics specific to the discussion and/or reading of individual classes • personalize questions; use questions that require the students to relate to their personal life or work environment. • Require students to cite personal experiences • Require students to relate the subject matter to their own personal/professional/life experiences 	Use specific, uncommon, or personalized topics for written assignments
42	<ul style="list-style-type: none"> • Instruct students on how to cite resources • Instructor demonstrate appropriate Internet research • Educate students regarding plagiarism • Provide examples of acceptable and unacceptable examples of ways to cite information • Discuss intellectual property and copyright as a class activity 	Instruct students on how to cite sources

43	<ul style="list-style-type: none"> • Provide specific instructions about bibliography and footnoting styles • impose my own unique outline for their papers so that they cannot submit canned papers purchased at a paper mill. 	Impose specific instructions about paper and citation format
44	<ul style="list-style-type: none"> • Design assignments that build upon previous assignments, requiring revision of content 	Design assignments that build upon previous assignments, requiring revision of content
45	<ul style="list-style-type: none"> • Have students submit a rough draft • Submit work in sections (drafts, outlines) • Submit assignments in sections; Assess progress throughout the entire research process • Students must submit their draft for each major section of the paper at regular intervals throughout the semester. Extensive written feedback for the paper is given in five stages which correspond with the major points of the outline. The students must then edit their drafts to reflect a response to the feedback. Only the final paper receives a formal grade. The feedback about the draft sections often includes back-and-forth discussion between the professor and the student (by email, discussion tool, or telephone) to help the student understand and apply theory. The student must have intimate knowledge of their work (and the thinking behind it) to engage in this interaction. • Turn in drafts of work at different point in the writing process. • Submit notes and rough drafts • Extensive written feedback for each stage of a long paper. • use assessment tools that assess the process rather than the product 	Submit work in sections (drafts, outlines) or as a rough draft
46	<ul style="list-style-type: none"> • Use faculty papers (original work) as topic material/source • Require specific sources (course textbooks and other content) as source material 	Require the use of specific sources (e.g. faculty papers, specific articles)

47	<ul style="list-style-type: none"> • Submit copies of sources 	Have students submit copies of sources
48	<ul style="list-style-type: none"> • Use Google and other search engines for suspicious text • Internet keyword search 	Use Google and other search engines to search for suspicious text
49	<ul style="list-style-type: none"> • Require several possible introductions to papers 	Require students to submit multiple versions of introductions to papers
50	<ul style="list-style-type: none"> • Discuss assignments with students synchronously after submission • Occasionally talk to students in person if possible. 	Discuss papers over the phone after submission
	<ul style="list-style-type: none"> • Recommendation to put away all electronic devices 	Not included
	<ul style="list-style-type: none"> • “Hot line” to report cheating 	Not included
	<ul style="list-style-type: none"> • Small class sizes 	Not included
	<ul style="list-style-type: none"> • Professional practices course required by some majors includes ethical practices for practitioners and students. 	Not included
	<ul style="list-style-type: none"> • Student produced video assignments • Student produced audio assignments 	Not included
	<ul style="list-style-type: none"> • Use calculated math questions 	Not included
	<ul style="list-style-type: none"> • In Math questions include in the answers the "figure" that they would get if they didn't take the process to its conclusion or if they missed a step. 	Not included

	<ul style="list-style-type: none"> • Have students submit digital pictures of themselves doing the lab assignments 	Not included
	<ul style="list-style-type: none"> • Summarize papers in class after they have been turned in. 	Not included
	<ul style="list-style-type: none"> • Set the time limit knowing that there is no way the students can complete the test in the time allowed...that puts pressure on students because if they stop to cheat on one question they won't have enough time to complete the test so they plod on. The instructor knows that they won't be able to complete the test. 	Not included
	<ul style="list-style-type: none"> • Write mastery-type assessments which require students to know the subject matter 	Not included
	<ul style="list-style-type: none"> • Require students to test in a computer lab with video monitoring. Must record the i.d. number of their computer work station. 	Not included
	<ul style="list-style-type: none"> • Avoid using words such as “always” and “never” in multiple choice tests 	Not included
	<ul style="list-style-type: none"> • self assessment using pre-designed rubrics 	Not included
	<ul style="list-style-type: none"> • Require students to take notes with a database program and submit with assignment 	Not included
	<ul style="list-style-type: none"> • When using matching questions, put more items in column B than you have in column A which negates the process of elimination 	Not included
	<ul style="list-style-type: none"> • include some similarly-worded questions with a slight, meaningful variation 	Not included

	<ul style="list-style-type: none">• Design test that are not trivial or overly difficult	Not included
	<ul style="list-style-type: none">• write a reflection piece on each artifact explaining why it represents an improvement in their performance.	Not included
	<ul style="list-style-type: none">• Avoid making the longest answer the correct choice on multiple choice tests	Not included

APPENDIX L

SUMMARY DATA OF THE USE OF GENERAL INTERVENTION MEASURES

<i>N</i> =309		
General intervention measures	Frequency	Percent
1. Have an explicit honor code or academic integrity policy (campus or classroom)	246	79.6
2. Report cheating to administration / Consistent action and diligence in all classrooms across an institution	167	54
3. Rotate assignments and reading requirements regularly	190	61.5
4. Distribute grades over multiple tests and projects (i.e. Course grade is not determined by performance on a small number of assessments)	254	82.2
5. Require students to cooperate and/or coordinate with each other on assignments	155	50.2
6. Provide clear directions of what is and is not allowed	266	86.1
7. Educate students regarding academic dishonesty and consequences	247	79.9

APPENDIX M

SUMMARY DATA OF THE USE OF EXAMS AND TESTS INTERVENTION MEASURES

General intervention measures	N=309	
	Frequency	Percent
8. Proctor exams on campus	174	56.3
9. Proctor exams at a distance (student secures appropriate proctors)	65	21
10. Set time limits on assessments appropriate for the number and complexity of questions	226	73.1
11. Use selective release on assessments to limit the dates when assessments are available	218	70.6
12. Randomize questions and answers	204	66
13. Deliver questions one at a time	146	47.2
14. Do not allow students to revisit the questions during the test	92	29.8
15. Select questions from large question banks to create different assessments for each student	122	39.5
16. Do not reveal test once taken; provide feedback through other means	98	31.7
17. Reveal test only after the availability window has closed	119	38.5
18. Use JavaScript code that prevents copying exam	48	15.5
19. Allow the use of notes and course textbook during exam	174	56.3
20. State that textbook may not be used	66	21.4
21. Utilize multiple, short, low-stakes assessments throughout the course	164	53.1

22. Minimize grade weight for online quizzes and tests	127	41.1
23. Require students to access assessments with a proctor code	27	8.7
24. Do not use any multiple choice questions on tests	46	14.9
25. Include essay questions in addition to multiple choice and short answer	139	45
26. Do not use online quizzes (i.e. instead use written assignments, discussions, projects, portfolios, etc.)	65	21
27. Use questions that involve higher order thinking; require explanations, problem-solving, and decision-making	167	54
28. Include honor code statement as a question with "I agree" or "I do not agree" choices	54	17.5
29. Use alternative versions of tests for makeup exams	144	46.6
30. Utilize tracking data from the Learning Management System (VISTA/GeorgiaVIEW)	88	28.5
31. Make test very long, e.g. 3 hours	22	7.1
32. Require the use of Secureexam Remote Proctor	9	2.9
33. Use specialized browsers that only allow access to the assessment, e.g. Respondus Lockdown Browser, SecureExam Browser	23	7.4
34. Use identity verification software, e.g. Acxiom Student Identity Verification product	10	3.2

APPENDIX N

SUMMARY DATA OF THE USE OF WRITING-BASED ASSESSMENT

INTERVENTION MEASURES

	<i>N</i> =309	
Writing-based intervention measures	Frequency	Percent
35. Use plagiarism detection service (e.g. Turnitin.com, SafeAssign)	103	33.3
36. Alert/warn about the use of plagiarism detection services (e.g. Turnitin.com)	102	33
37. As a prevention measure, show students methods for detecting cheating	52	16.8
38. Critique a paper from a “term paper mill” to show the weaknesses of purchased papers	14	4.5
39. Remind students about plagiarism in exam directions	98	31.7
40. Compare vocabulary and grammar to previous writing assignments	125	40.5
41. Use specific, uncommon, or personalized topics for written assignments	121	39.2
42. Instruct students on how to cite sources	175	56.6
43. Impose specific instructions about paper and citation format	140	45.3
44. Design assignments that build upon previous assignments, requiring revision of content	113	36.6
45. Submit work in sections (drafts, outlines) or as a rough draft	105	34
46. Require the use of specific sources (e.g. faculty papers, specific articles)	62	20.1

47. Have students submit copies of sources	87	28.2
48. Use Google and other search engines to search for suspicious text	141	45.6
49. Require students to submit multiple versions of introductions to papers	16	5.2
50. Discuss papers over the phone after submission	14	4.5

APPENDIX O

DATA OF THE EFFECTIVENESS RATING OF ALL INTERVENTION MEASURES

Item number	Intervention measure	N	Mean	SD
1	Have an explicit honor code or academic integrity policy (campus or classroom)	246	3.31	1.435
2	Report cheating to administration / Consistent action and diligence in all classrooms across an institution	167	3.47	1.430
3	Rotate assignments and reading requirements regularly	190	3.87	.917
4	Distribute grades over multiple tests and projects (i.e. Course grade is not determined by performance on a small number of assessments)	254	4.07	.974
5	Require students to cooperate and/or coordinate with each other on assignments	155	3.61	1.316
6	Provide clear directions of what is and is not allowed	266	3.73	1.251
7	Educate students regarding academic dishonesty and consequences	247	3.45	1.251
8	Proctor exams on campus	174	4.32	.840
9	Proctor exams at a distance (student secures appropriate proctors)	65	3.94	1.171
10	Set time limits on assessments appropriate for the number and complexity of questions	226	3.80	1.089
11	Use selective release on assessments to limit the dates when assessments are available	218	3.76	1.107
12	Randomize questions and answers	204	3.93	1.118
13	Deliver questions one at a time	146	3.73	1.381

Data of the Effectiveness Rating of All Intervention Measures(continued)

Item number	Intervention measure	N	Mean	SD
14	Do not allow students to revisit the questions during the test	92	3.87	1.344
15	Select questions from large question banks to create different assessments for each student	122	4.05	1.142
16	Do not reveal test once taken; provide feedback through other means	98	3.84	1.146
17	Reveal test only after the availability window has closed	119	3.87	1.054
18	Use JavaScript code that prevents copying exam	48	3.83	1.310
19	Allow the use of notes and course textbook during exam	174	3.86	1.100
20	State that textbook may not be used	66	2.74	1.362
21	Utilize multiple, short, low-stakes assessments throughout the course	164	3.92	1.146
22	Minimize grade weight for online quizzes and tests	127	3.55	1.166
23	Require students to access assessments with a proctor code	27	4.33	1.387
24	Do not use any multiple choice questions on tests	46	4.28	1.328
25	Include essay questions in addition to multiple choice and short answer	139	3.78	1.084
26	Do not use online quizzes (i.e. instead use written assignments, discussions, projects, portfolios, etc.)	65	4.02	1.111
27	Use questions that involve higher order thinking; require explanations, problem-solving, and decision-making	167	3.95	.859

Data of the Effectiveness Rating of All Intervention Measures(continued)

Item number	Intervention measure	N	Mean	SD
28	Include honor code statement as a question with "I agree" or "I do not agree" choices	54	2.98	1.584
29	Use alternative versions of tests for makeup exams	144	4.05	.941
30	Utilize tracking data from the Learning Management System (VISTA/GeorgiaVIEW)	88	3.85	1.140
31	Make test very long, e.g. 3 hours	22	2.86	1.670
32	Require the use of Secureexam Remote Proctor	9	3.56	2.297
33	Use specialized browsers that only allow access to the assessment, e.g. Respondus Lockdown Browser, SecureExam Browser	23	3.91	1.756
34	Use identity verification software, e.g. Acxiom Student Identity Verification product	10	3.50	2.273
35	Use plagiarism detection service (e.g. Turnitin.com, SafeAssign)	103	4.02	1.171
36	Alert/warn about the use of plagiarism detection services (e.g. Turnitin.com)	102	3.67	1.221
37	As a prevention measure, show students methods for detecting cheating	52	3.50	1.245
38	Critique a paper from a "term paper mill" to show the weaknesses of purchased papers	14	2.79	1.311
39	Remind students about plagiarism in exam directions	98	3.42	1.243
40	Compare vocabulary and grammar to previous writing assignments	125	3.74	.977

Data of the Effectiveness Rating of All Intervention Measures(continued)

Item number	Intervention measure	N	Mean	SD
41	Use specific, uncommon, or personalized topics for written assignments	121	4.03	.966
42	Instruct students on how to cite sources	175	3.63	1.014
43	Impose specific instructions about paper and citation format	140	3.76	1.045
44	Design assignments that build upon previous assignments, requiring revision of content	113	3.97	1.022
45	Submit work in sections (drafts, outlines) or as a rough draft	105	3.60	1.052
46	Require the use of specific sources (e.g. faculty papers, specific articles)	62	3.84	1.162
47	Have students submit copies of sources	87	3.83	1.173
48	Use Google and other search engines to search for suspicious text	141	3.94	1.006
49	Require students to submit multiple versions of introductions to papers	16	3.06	1.769
50	Discuss papers over the phone after submission	14	3.00	1.961

APPENDIX P

CONDENSED LIST OF 50 INTERVENTION MEASURES GROUPED BY CATEGORIES

Number	Category*	Intervention Measures
1	G	Have an explicit honor code or academic integrity policy (campus or classroom)
2	G	Report cheating to administration / Consistent action and diligence in all classrooms across an institution
3	G	Rotate assignments and reading requirements regularly
4	G	Distribute grades over multiple tests and projects (i.e. Course grade is not determined by performance on a small number of assessments)
5	G	Require students to cooperate and/or coordinate with each other on assignments
6	G	Provide clear directions of what is and is not allowed
7	G	Educate students regarding academic dishonesty and consequences
8	ET	Proctor exams on campus
9	ET	Proctor exams at a distance (student secures appropriate proctors)
10	ET	Set time limits on assessments appropriate for the number and complexity of questions
11	ET	Use selective release on assessments to limit the dates when assessments are available
12	ET	Randomize questions and answers
13	ET	Deliver questions one at a time
14	ET	Do not allow students to revisit the questions during the test
15	ET	Select questions from large question banks to create different assessments for each student
16	ET	Do not reveal test once taken; provide feedback through other means
17	ET	Reveal test only after the availability window has closed
18	ET	Use JavaScript code that prevents copying exam
19	ET	Allow the use of notes and course textbook during exam
20	ET	State that textbook may not be used
21	ET	Utilize multiple, short, low-stakes assessments throughout the course
22	ET	Minimize grade weight for online quizzes and tests
23	ET	Require students to access assessments with a proctor code
24	ET	Do not use any multiple choice questions on tests
25	ET	Include essay questions in addition to multiple choice and short answer
26	ET	Do not use online quizzes (i.e. instead use written assignments, discussions, projects, portfolios, etc.)
27	ET	Use questions that involve higher order thinking, require explanations, problem-solving, and decision-making

Condensed List of 50 Intervention Measures Grouped by Categories(continued)

Number	Category*	Intervention Measures
28	ET	Include honor code statement as a question with "I agree" or "I do not agree" choices
29	ET	Use alternative versions of tests for makeup exams
30	ET	Utilize tracking data from the Learning Management System (VISTA/GeorgiaVIEW)
31	ET	Make test very long, e.g. 3 hours
32	ET	Require the use of SecureExam Remote Proctor
33	ET	Use specialized browsers that only allow access to the assessment, e.g. Respondus Lockdown Browser, SecureExam Browser
34	ET	Use identity verification software, e.g. Acxiom Student Identity Verification product
35	WBA	Use plagiarism detection service (e.g. Turnitin.com, SafeAssign)
36	WBA	Alert/warn about the use of plagiarism detection services (e.g. Turnitin.com)
37	WBA	As a prevention measure, show students methods for detecting cheating
38	WBA	Critique a paper from a "term paper mill" to show the weaknesses of purchased papers
39	WBA	Remind students about plagiarism in exam directions
40	WBA	Compare vocabulary and grammar to previous writing assignments
41	WBA	Use specific, uncommon, or personalized topics for written assignments
42	WBA	Instruct students on how to cite sources
43	WBA	Impose specific instructions about paper and citation format
44	WBA	Design assignments that build upon previous assignments, requiring revision of content
45	WBA	Submit work in sections (drafts, outlines) or as a rough draft
46	WBA	Require the use of specific sources (e.g. faculty papers, specific articles)
47	WBA	Have students submit copies of sources
48	WBA	Use Google and other search engines to search for suspicious text
49	WBA	Require students to submit multiple versions of introductions to papers
50	WBA	Discuss papers over the phone after submission

*Categories: G = General, ET = Exams and Tests, WBA = Writing-based Assessments