Preventing Online Cheating with Technology: A Pilot Study of Remote Proctor and an Update of Its Use

D. Wayne Bedford
University of West Alabama

Janie R. Gregg
University of West Alabama

M. Suzanne Clinton
University of Central Oklahoma

Online education continues to grow in popularity as does the escalation of creative ways to cheat. Major accrediting agencies require institutions with online programs to demonstrate rigor and integrity of similar on-campus programs, including ascertaining that the person registered for a class is actually doing the work. Some programs are using technology to verify the person taking tests is the enrolled student and to monitor the testing environment for evidence of cheating. This article investigates why students cheat, how creative the cheating process has become with the use of technology, and offers ways in which professors can combat the problem.

INTRODUCTION

Technology has led to creative new ways in which students from kindergarten through college can enhance their cheating abilities, especially in online classes. Any student who has a cell phone, I-phone, I-Pad, I-Pod, or laptop, and knows how it works, can use any of these devices as a savvy means to enhance cheating in class, but cheating in online classes takes on several additional factors.

This paper uses a problem solving approach to curbing online cheating. The paperfirst identifies the problem: what kinds of students are cheating and why students cheat. Next, it presents a discussion of why students feel it is so very necessary to cheat to get ahead of other students in today's competitive environment and why they take online classes to enhance their chances of being able to cheat. The paper then presents an examination of how creative the cheating process has become with the use of several technological devices that all students seem to carry. Second, the authors took new technology available to professors and put it to the test. This paper contains a report of a pilot study of Software Secure's Remote Proctor and the secure testing environment. The Technology Acceptance Model (TAM) was used to verify student perceptions of ease of use of Remote Proctor and whether the student believed it would reduce incidents of cheating. Instructors were also asked for their opinions based on viewing videos recorded in the test environment. Based on the results of this study, the researchers recommended that the university adopt Remote Proctor in its online program. Finally, the authors offer other ways professors can use some of their own technology, new and not-so-new, to combat the problem.

The Rationalist, The Phantom, and The Deserving

"My supervisor gave me this project to complete by tomorrow and I have an online accounting test tomorrow night. I will never have time to study and get the project completed, so I will call Sally to see if she has taken her test yet. She can tell me what is on it and I won't have to study anything except the problems she had."

"Coach told me that I have to get my GPA up to play football this fall, so I decided I should take an online class. My girlfriend is taking the class, too, and she can do all the work for both of us. We will change the answers a bit and no one will know because all the work is done on the computer and no one can see me taking the tests. I will be out of the hole in no time at all!"

"I can't believe what this school is charging me for online classes and this teacher expects me to do all this work to earn an A. As much as it costs, I deserve an A out of this class whether I do the work or not. I will get to know some more people in the online class and we can divide the work. That way we will all come out better and will not have to work so hard."

It is simply amazing that education is one of the few things from which people do not want their money's worth! If any of the three students who had one of these mental conversations had gone to the grocery store and arrived home to find a pack of gum or an apple missing from their bag, they would immediately call the store and demand their money back! However, with education, it seems these thoughts and many others permeate the minds of students who feel that cheating is all part of getting through classes and making the grade. They approach education as a check-off list, and they have no care about learning outcomes. This mentality coupled with today's technology is creating a new generation of innovative ways to cheat, which, if not curbed, leads to a large problem for educators: how can we trust the integrity of the institutions granting the diplomas hanging in the offices behind our doctors (Semerci, 2006), dentists (Gulli, Kohler, & Patriquin, 2007), nurses (Harper, 2006), lawyers & engineers (Graves, 2008), business people (Iyer & Eastman, 2006; Donald L. McCabe, Butterfield, & Trevino, 2006; Olsztynski, 2008), educators (Hulsart & McCarthy, 2009), farmers (George, 2011), policemen (Bender, 2011), and people in other disciplines in which we entrust our lives? (Gulli, 2007; Macleans, 2007).

Cheating: A Growing Problem?

The Editors of Macleans (2007) cite research from a survey of eleven Canadian institutions indicating that "a stunning 53 percent of the 15,000 students surveyed admitted to serious cheating on written work " (p4), with 18 percent admitting to cheating during an exam, figures they believe are much higher than reported. They believe that it is as common on college campuses as "keg parties and all-nighters" (p4). Why is the number of cheaters growing? Besides the three reasons mentioned above, Caldwell (2010) cites several research studies which report that "everyone else is doing it;…It helps me get better grades, a good job, or admitted to graduate school" (p2). Bedford, Gregg, and Clinton (2009), citing the works of multiple researchers, list reasons for the growth of cheating such as "social leniency around rule breaking, …heightened competition for jobs on graduation,…larger class size,…the proliferation of electronic devices that make it easier to cheat,…[and] offences are observed and ignored by the university (p235)." The authors believe the fact that university punishment is light if it is imposed at all, fear of violent retaliation from students, or the lack of consequences, among other reasons, have resulted in increased cheating. Volpe, et al (2008) believe when students feel there is little reason for them to think they will be caught, they are more likely to cheat. Gibson (2009) believes that cheating is more apt to happen "when the cash payoff for…deception is not immediate" (p25) and if a person has cheated before, subsequent lapses of this behavior are more likely to happen. Sparks (2011) echoes that subsequent lapses will occur. Actually, she quotes several studies which found that students who start cheating before they get to college will be much more likely to cheat in college. In fact, she states that the "likelihood of cheating increases the older students get" (p1).

Cheating: The Literature

The literature is full of studies that have investigated cheating. A list of some of the variables that have been investigated and the contributing authors is provided in Table 1.

TABLE 1
CHEATING AND THE LITERATURE: VARIABLES INVESTIGATED

Variables	Authors
Public vs. private	(Boh S. Brown & Choong, 2005; Calabrese & Cochran, 1990; DeVries & Ajzen, 1971; Etter, Cramer, & Finn, 2006; Graham, Monday, O'Brien, & Steffen, 1994)
Major	(Baird, 1980; B. S. Brown, 1996; Hendershott, Drinan, & Cross, 2000; Iyer & Eastman, 2006; Klein, Levenburg, McKendall, & Mothersell, 2007; Malone, 2006; D. McCabe, 1992; Donald L. McCabe, et al., 2006; Meade, 1992; Nonis & Swift, 1998; Park, 2003; Pullen, Ortloff, Casey, & Payne, 2000; Roig & Ballew, 1994; Tom & Borin, 1988)
Age or classification of student	(B.S. Brown & Abramson, 1999; Crown & Spiller, 1998; Ford, 1994; Iyer & Eastman, 2006; Kuther, 2004; Lambert, Ellen, & Taylor, 2003; D. L. McCabe, & Treviño, L. K., 1997; Moffatt, 1990; Park, 2003; Sierles, Hendrickx, & Circle, 1980; Stern, 1986; Straw, 2002; Whitley, 1998)
Employment	(Iyer & Eastman, 2006)
Gender	(Baird, 1980; Buckley, Wiese, & Harvey, 1998; Iyer & Eastman, 2006; Lambert, et al., 2003; Leming, 1980; D. L. McCabe, & Treviño, L. K., 1997; Tang & Zuo, 1997)
GPA	(Bunn, Caudill, & Gropper, 1992; Crown & Spiller, 1998; Iyer & Eastman, 2006; D. L. McCabe, & Treviño, L. K., 1997; Moffatt, 1990; Nonis & Swift, 1998; Straw, 2002; Tang & Zuo, 1997; Whitley, 1998)
Greek membership	(Iyer & Eastman, 2006; D. L. McCabe, & Treviño, L. K., 1997; Park, 2003; Storch & Storch, 2002; Straw, 2002)
Peer involvement	(Chapman, Davis, Toy, & Wright, 2004; D. L. McCabe, & Treviño, L. K., 1997)
Religious vs. non-religious institutions	(Boh S. Brown & Choong, 2005; Bruggeman & Hart, 1996)
Efforts to increase academic integrity	(Chapman, et al., 2004; D. L. McCabe, & Treviño, L. K., 1997; Donald L. McCabe, et al., 2006)
Graduate vs. undergraduate	(Baird, 1980; Bowers, 1964; Iyer & Eastman, 2006; D. L. McCabe, & Treviño, L. K., 1997; Donald L. McCabe, et al., 2006; D. L. McCabe & Treviño, 1995)
Technologically innovative	(Iyer & Eastman, 2006)
Time management	(Lambert, et al., 2003; Park, 2003; Payne & Nantz, 1994)
Campus size	(D. L. McCabe & Treviño, 1996)
Marital Status	(Whitley, 1998)
Locus of Control	(Crown & Spiller, 1998)
Financial Support or Working less Hours	(Diekhoff, LaBeff, Clark, Williams, Francis and Haines, 1996; Haines, Diekhoff, LaBeff and Clark, 1986)
Self Efficacy	(Murdock & Anderman, 2006)
Student Perceptions	(Ashworth & Bannister, 1997)

Cheating: What is Wrong and What is Not?

In addition to examining the relationships between cheating and all of the preceding variables, previous studies have also examined students' perceptions of cheating, some indicating degrees of

wrongness among forms of cheating. For example, cheating on a test may be viewed as much more "wrong" than plagiarism (Hulsart & McCarthy, 2009; Payne & Nantz, 1994). Given the myriad of definitions of plagiarism listed in the literature, students may find it hard to know exactly what cheating is. This fact is illustrated by numerous studies that posed questions or statements to which students would indicate the degree of rightness or wrongness of the activity. Results varied depending upon the respondent's age, classification, major, GPA, etc.

Cheating: An Issue for Online Courses

What is not so prevalent in the literature listed above are studies concerning cheating and distance learning. Although there is not a complete gap in the literature for this topic, there is a lack of research in this area.

Ashworth and Bannister (1997) found that anonymity may contribute to cheating. In many cases in the online environment, the feeling of anonymity is prevalent. Additionally, their study indicated that students are more likely to cheat when they feel that they are receiving a low quality educational experience, or when they are excluded from the academic community (Ashworth & Bannister, 1997). Chapman, Davis, Toy and Wright (2004, p.238) found that "the variables that seem to facilitate cheating include increased class size, decreased surveillance, test importance and difficulty, close seating arrangements, and grading on a curve." Parke (2003) noted instructors' concern that students may feel more comfortable using material from the internet as their own because they regularly download music without buying it. Similarly, Auer and Krupar (2001) stated that the ease of cutting and pasting may have increased the occurrence of plagiarism. The authors identified the following issues as increasing the likelihood of cheating in online courses: anonymity; not much face-to-face interaction with instructor to build trust or a relationship that might have prevented cheating; students' questions of "how will they catch me if they don't see me?"; students may not take online courses as seriously as in-person class (e.g., lack of informality in emails to professors and posting complaints about the professor in the discussion board for the class); pressure to cheat due to full-time employment which may be why students are taking online classes in the first place; student perceptions that an online class should be easier than an in-person class; and students' beliefs that it is easier to get away with cheating due to lack of monitoring. The next section of the paper explores the use of new technology to curb cheating in online classes. Styron and Styron (2010) have given online cheating its own name "eCheating," and drawing from social learning theory, believe it is a socially derived behavior, one learned simply by observing other students cheating. With online classes, the observation comes from talking with peers who have discussed the fact that they cheat either online or in class, and have suffered no punishment for doing so.

How Students Cheat and Actions Instructors can take to Prevent Cheating in Online Courses

Facing the fact that cheating is a prevalent problem (Schmidt & Ralph, 2010), the authors started to look into alternative ways to prevent cheating. In Table 2, the authors provide a list of how students cheat and what professors, can do to combat it. The authors' research revealed a device that could possibly help detect cheating in online classes, and thus became a subject of research. The Remote Proctor, of course, is mentioned as a way to curb some of these cheating problems, but several other ideas are offered, as well. The authors' research on the Remote Proctor follows the table.

TABLE 2 HOW STUDENTS CHEAT AND ACTIONS INSTRUCTORS CAN TAKE TO PREVENT CHEATING IN ONLINE COURSES	
How Students Cheat	**What Professors can do to Combat Cheating**
One student takes the test first and helps the other, then next time, the second student takes the exam first and helps the first	Use person to proctor or a camera proctor which has a 360 degree span which must be on while the student is taking the test so you can observe who is in the room with him.
Take the test together	Give multiple forms of the test or a randomized block test, choosing to give each student a completely different test.
Sharing work with other students	Have students submit all work in a digital format and use turnitin.com to check all assignments
	Have students sign honesty pledges
	Address cheating in syllabus, class discussions, online chats, etc
Have another student take an unproctored exam for you	Have proctor use fingerprint recognition software.
Have outside party take the exam for you if unproctored	Use fingerprint recognition software to log into tests.
Have another student take the class completely for you	Have students submit, in person, a valid photo identification card issued by the University and make copies of them.
Have a twin or look-alike relative take the test for you	Throw in a few course-navigation questions (which would be missed by an outsider)
Cell phones with internet capability	Have proctor use a Microsoft Dongle to detect any devices with Bluetooth technology in the "on" position.
Text answers using a cell phone	Have a box at the front of the room where students place their cell phones, calculators, etc., during a test. Be sure student names are on each piece of equipment. Show ID to reclaim equipment.
Take a picture of an exam using a cell phone	Give randomized block test, choosing to give each student a completely different test drawn from the entire test database.
Program formulas into calculators to use on tests	If proctored, give students a calculator to use

Copy and paste the exam to a word processing program	Have software to track where students went in the computer or on the internet while they were on the computer.
Print the quiz or exam for another student	Do not allow printing during the test. Blackboard has a feature which does not allow printing during the test. Code no copy no print. If proctored, do not allow printing after the test and no checking/sending e-mail
Crib notes/Open book	Remote camera proctor (Software Secure) Strict time limits can be added for taking the test, such as one minute per question for a standard multiple choice question, and the recognized time limits given in the test bank for more complex questions
Giving fraudulent excuses in order to take the test at a later date	Accept only excuses from reputable doctors on their letterhead or excuse pad. Accept only letters from employers on company letterhead Accept only funeral notices/bulletins which list the student as a relative Require prior notice of absence if it is not emergency related to makeup work Use the university's advising center to check excuses to see if they are valid Use participation points that count only if the student is present, no consideration for excuses at all
Buy a paper from on online source or another student Plagiarism	Have students submit a copy of all articles or a link to each of them which will be used to write the paper PRIOR to writing the paper, along with an outline showing where they will cite the articles. Refer back to them when grading. Count off a significant amount (maybe 10%) for using any article that is not in the original batch of articles or if not submitted prior to the final document. Have students keep a research paper notebook. Have a place for the outline, the articles, notes, copies of all rough drafts, and the final paper. Have them submit it with their papers via snail mail or in person.

	Accept only references with authors' names listed and full journal citations…nothing from internet websites.
	Have plagiarism definition on the course syllabus
	Have plagiarism policy on the syllabus
	Give a syllabus test and address several aspects of the plagiarism policy and definition in the questions.
	ALWAYS PROSECUTE ALL OFFENDERS ACCORDING TO UNIVERSITY POLICY!!

Faculty need to provide clear definitions of cheating and plagiarism that are accepted by the University and are easy for the student to comprehend, such as making it clear in syllabi that cutting and pasting information from the internet and other sources is plagiarism (Jones, 2009). Stucker (2011) also suggests that video-taping on-campus classes while students are testing would be a deterrent to cheating. *PR Newswire* (World's First Cell Phone Spy Software to Deliver Activity Reports via Email, 2011) reports that new software available on cell phones to track text messages and call information in their entirety could be used in multiple ways, such as tracking employee habits or a cheating spouse. For habitual offenders caught cheating taking tests online or in the classroom, this would be a logical required report sent by the offender 's phone company to the professor to ensure that there was no cheating via text or other phone activity occurring while the student was taking a test. Finally, in an article from *The Chronicle of Higher Education*, citing the research of an agribusiness professor in South Dakota, Glenn (2011) suggests that final exams should always be proctored for online classes with no books or notes to prevent cheating and to enhance learning during the semester.

THE PILOT STUDY OF REMOTE PROCTOR

According to the Southern Association of Colleges and Schools (SACS) and other accrediting agencies including the Accreditation Council for Business Schools and Programs (ACBSP) and the Association to Advance Collegiate Schools of Business (AACSB), online programs must reflect the integrity and rigor of on-campus programs. In order to attempt to ensure integrity, the University of West Alabama College Of Business, in association with Software Secure, conducted a pilot study to test the use of Remote Proctor in the courses offered online by the university. The researchers' primary interest is assessing the level of integrity that can be added to the testing procedures used in the online courses through biometric validation of the identity of the student and monitoring activity in the testing area. Also, if the study finds that Remote Proctor demonstrates ease of use for students and faculty, and improves confidence in the integrity of the online program, it will be incorporated into the UWA online program.

Software Secure Remote Proctor requires the student to use biometric verification as well as visual identification to log on to the testing site. The device plugs into a USB port on the student's computer and contains a fingerprint scanner and 360 degree camera. The scanner and camera verify the student's identity and the camera monitors activity in the examination area. Captured videos are uploaded to a secure web site maintained by Software Secure. Instructors may view the videos to determine if activities occurred that might indicate cheating took place.

The purpose of this pilot study was three-fold: 1) test the Remote Proctor device in a lab environment, 2) provide information about its ease of use by students and faculty, and 3) make a recommendation about

the adoption of the product in online courses. The research findings were previously published in 2009 (See Bedford, Gregg, & Clinton 2009).

Materials

For a period of 30 days, and for evaluation costs of $750, Software Secure provided UWA with five Remote Proctor units. Additionally, for $750, UWA purchased a 30-day academic license for Securexam, the Remote Proctor software, to cover five students.

Participants

All UWA faculty members from all colleges were encouraged to participate in this study. The only special criteria required for participation were simply an interest in improving the caliber of the online programs at UWA. All full-time faculty members received an email with a questionnaire attached (see Appendix A). Participating instructors were asked to visit the Remote Proctor web site. Once at the website, participating faculty were asked to view the videos taken during the test period. Once the faculty had viewed the exam videos, they were asked to complete and submit a questionnaire about their experience. Table 3 provides a breakdown of participating faculty and their college affiliation.

TABLE 3
PARTICIPATING FACULTY

College/School	Number of Responses
Business	8
Education	5
Liberal Arts	2
Natural Science & Math	1
Nursing	2
Other	2

The duration of the study was very short due to the fact that the Remote Proctor evaluation period lasted for only 30 days. As such, instructors in the College of Business asked their students to participate in the study. Participating students took one or more prepared tests using Remote Proctor. Grades on these tests were unimportant to the process. Participating students were asked to complete the following three steps: 1) install the Remote Proctor hardware and software, 2) enroll their credentials (fingerprint and photo), and 3) take one or more tests on the Software Secure Blackboard site. Student participants were encouraged to use their cell phones, shuffle papers, talk, and perform several other activities that Remote Proctor would capture as suspicious video. Remote Proctor recorded these suspicious activities to the administrative site. Once the student participants had completed the test(s), they also completed a short questionnaire about their perceptions of testing using the Remote Proctor. Student and faculty questionnaire results are presented in the analysis section of this paper. Table 4 below provides a division of the student participants by rank and gender. Freshmen and sophomores represented several colleges at UWA, including the College of Business, while juniors and seniors were likely to be taking only courses in the College of Business.

TABLE 4
STUDENT DEMOGRAPHICS

Rank	Gender		
	Male	Female	Total
Freshman	5		5
Sophomore	2	2	4
Junior	5	3	8
Senior	11	3	14
Total	**23**	**8**	**31**

Process

Software Secure prepared three courses on their Blackboard site for the purpose of this study. "American History 101" was the first course, and the test name is "Early American History Quiz." "Math 101" was the second course, and its test name was "Introductory Mathematics." "Popular Culture 101" was the third course, and its tests were "Exam Question Samples," and "Streaming Media and PDF File Questions." The researchers felt that three courses and four exams were sufficient to test the Remote Proctor testing system. Using prepared tests precluded UWA faculty from having to write and upload special exams solely for this project.

Student

The researchers wanted to have as many students as possible participate in this study. Our targeted student participation was to have at least 50 students take the tests; however, due to the short evaluation period, this target proved to be impracticable. The actual number of student participants (31) is lower than desired. However, it was sufficient to provide a statistically normal sample. In order to ensure student participants a realistic experience that reflected what an online student would have to do to use Remote Proctor, each student participant was required to do the following:
- remove the Remote Proctor and other materials from the original box;
- review installation instructions and other documentation;
- assemble the Remote Proctor;
- install the software and hardware following the instructions provided;
- register the installation and enroll their credentials;
- logon to the Software Secure Blackboard site and take the test(s).

Student participants were asked to perform activities that activate the suspicious activities monitor (talk, open a book, etc.) in order to provide a realistic test of Remote Proctor's capabilities. The "offending" activities were captured and recorded by Remote Proctor on a test site for viewing by faculty.

Student participants took the tests, closed Blackboard, and completed the short study questionnaire. The entire process took student participants about one-half hour to complete.

Faculty

UWA faculty members in all colleges were emailed a copy of the study questionnaire and encouraged to participate in this study by completing the following steps:
- Review the Remote Proctor videos of the students recorded on the Remote Proctor web site (www.remoteproctor.com/login/school-b)
    Userid for Faculty =teacher-b
    Password =teacher-b;
- Return the completed questionnaire via email.
Twenty faculty members covering all colleges responded to the questionnaire.

Analysis

Microsoft Excel was used to provide the statistical analysis of the questionnaires from students and faculty. Student participant demographic data was collected and is shown in the Table 4. Student participants were 74% male and 26% female. A majority of the students were juniors and seniors. Only four of the student participants reported they had taken online classes at UWA; however, nine indicated plans to take online courses. The student participants were supportive of adopting Remote Proctor by 3:1 as illustrated in Figure 1 below.

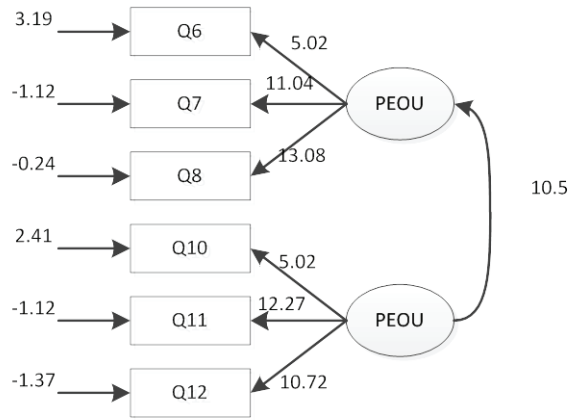**FIGURE 1**
STUDENT RECOMMENDATIONS
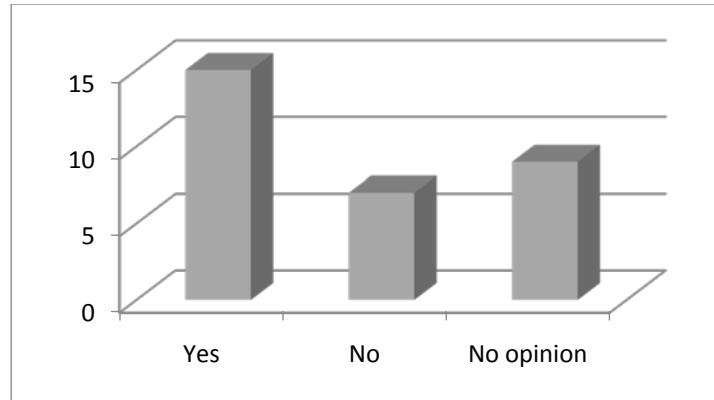
Acceptance and Adoption

Two primary factors determine the successful adoption of a new technology: perceived usefulness and perceived ease of use (Davis, 1989). The degree to which users believe that the technology will facilitate the process is used to define perceived usefulness. The process evaluated in this study was reducing opportunities for cheating and was addressed in questions 6, 7, and 8. The degree to which users find the effort involved in using the technology as minimal is used to define perceived ease of use. This factor was addressed in the student questionnaire by questions 10, 11, 12. They were also addressed in the faculty questionnaire by questions 1, 3, 4 (ease of use), and 5, 6, 8 (perceived usefulness).

Strength of the relationships between the variables and their effect on the latent variables of perceived usefulness (PU) and perceived ease of use (PEOU) were identifies by Structural Equation Modeling (SEM). Figure 2 below illustrates the SEM model used in this study.

Results of the study indicate all of the variables were significant with t values well above the critical value of 2.457 (α=.05, 30df). Further, the goodness of fit statistics for the model indicates an overall good model. Key goodness of fit indices include x^2 = 9.78 with a p-value of 0.28 and 8 degrees of freedom, adjusted goodness of fit (AGFI) = 0.94, and root mean square of approximation (RMSEA) = 0.086. The structural equation model confirms that student participants view Remote Proctor as 1) useful for reducing or discouraging cheating, 2) as easy to set up and use. The structural equation model also provides support for student willingness to adopt Remote Proctor. Software Secure has recently announced that its Mac version is available, which will help Mac users more easily incorporate the Remote Proctor in their test taking (Metzler-Sands, 2010).

FIGURE 2
STRUCTURAL EQUATION MODEL

Chi-Square=9.78, df=8, P-value=0.2808, RMSEA=0.086

UWA instructors were more limited in their exposure to Remote Proctor. Student participants were required to install, configure, and use Remote Proctor. However, instructors were only asked to view the videos captured during the time the tests were taken. Due to the small instructor sample size (20), SEM could not be used for analysis. However, UWA instructors supported adoption at a rate of almost 5:1 as illustrated in Figure 3 below.

FIGURE 3
FACULTY RECOMMENDATION
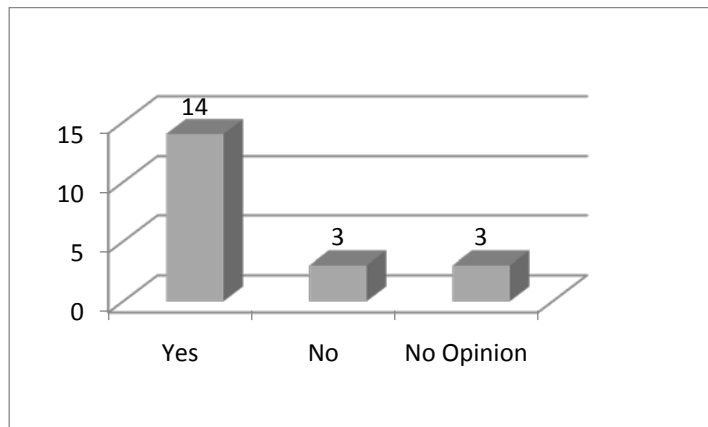
Adoption and Use of the Remote Proctor

The results of this study were presented to the UWA Provost and to the UWA faculty. These results and presentations led to the adoption of the Remote Proctor for use in all UWA online classes and the creation of the Academic Integrity Committee (AIC). In order to ensure proper use of Remote Proctor by faculty and students, the Division of Online Programs (DOP) was charged with creating a policy, including a release statement that online students are required to sign when entering online classes. Faculty added a corresponding statement about the use of Remote Proctor in online courses to all online syllabi. Similarly, directions for the proper use of the Remote Proctor were also created and given to online faculty and students.

The UWA Academic Integrity Committee was charged with creating policy related to academic integrity for the university using legal guidelines and precedents from other universities. The Dean's Council approved the policies and policy enforcement was given to the AIC to deal with offenders found cheating online and on campus. A summary of the process is as follows: 1) The company that produces Remote Proctor records the video taken by the equipment, reviews suspicious activities, and reports it to the DOP. 2) The DOP sends information to the faculty member who watches the suspicious clips, follows up with the student, and takes action against the student by filing the appropriate paperwork with the DOP and AIC, if warranted. Since the AIC's inception, numerous students have been reported to the committee, who further investigated the charges, notified the student of due process, and held hearings on the issues. The AIC and the University's management team believe, as do Hulsart and McCarthy (2009), that faculty should be active in promoting academic integrity, and thus usually follows the recommendations of the faculty member when deciding individual cases.

Due to the completeness of the videos provided by Remote Proctor, and the fact that videos do not lie, many students have simply signed a form admitting their guilt, waived the hearing, and accepted the penalties recommended by the faculty member. Penalties can range from being as simple as a written reprimand placed in the student's file, suspension for one term or two online or on-campus terms, to expulsion from the University, depending on the offense. Other students have maintained their innocence, come to hearings, viewed the video clips, and later, admitted their guilt.

Logic would indicate that two years of UWA's use of Remote Proctor in online classes would result in students getting "the word" around about students having been suspended for cheating. Further, one would think that this positive peer pressure would result in a decreasing number of violators. However, this doesn't seem to be the case yet. Without a doubt, the AIC is one of the most active university committees on campus, which seems to be mirrored at the University of Nottingham which recently dealt with over 300 cases in 2009 after investing in technology to solidify the university's commitment to deal with academic dishonesty (Financial Times Figures Show Level of Cheating at University, 2010). UWA expected the number of academic integrity cases to rise before they start to fall because the new technology helped to detect the cheaters who it was unable to catch without its use. In agreement with Sparks (2011) and Styron and Styron (2010), until students decide that by cheating they are only hurting themselves in the long run and "until today's student body can be convinced that cheating is unethical and improper, it will continue to challenge educators in both web-based and traditional courses" (p40).

Conclusion and Recommendation

Colleges and universities are increasingly offering online courses and programs and multiple studies referenced here and in other studies seem to make it clear that academic dishonesty in several forms is common in education from grade school to graduate school. As such, the ability to maintain the integrity of the outcomes becomes more important. The authors feel that the following is in order: Institutions need to verify the identity of the student taking tests. Institutions need to ensure the integrity of the testing environment. Live proctors can be used for both of these purposes, but this may prove to be too difficult for many students who choose to take online courses. One solution to the problem of having a live proctor is to apply modern technology. Secure Software Remote Proctor is a device that contains a fingerprint scanner and 360 degree camera. The student connects the device to his/her personal computer and uses the device to login to the test environment. The study indicates that the device is easy to install and configure and the login procedure is easy as well. Based on the results of this pilot study, it was recommended that Remote Proctor be adopted by the University of West Alabama to help reduce the problems of identity verification and test environment monitoring.

While this is a small study pertaining to a single university, it provides a demonstration of the usability of technology to improve the integrity of online courses and degree programs. Colleges and universities that incorporate the online delivery of their courses into their mix of programs should investigate the use of technology like Remote Proctor for administering tests to remote students. More information about Remote Proctor is available at http://www.softwaresecure.com/.

One thing is quantum to the research here: if technology is adopted and cheating is found, strong university policy to handle violators should be instituted and followed prior to the first use of the technology. While cheating seems to be on the rise, using technology to catch and prosecute students following due process should lead to a decrease in cheating activities over time.

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REMOTE PROCTOR INSTRUCTOR QUESTIONNAIRE

Please respond to the following statements by checking the appropriate number block.
1 = Strongly Disagree; 2 = Disagree; 3 = No Opinion; 4 = Agree; 5 = Strongly Agree

		1	**2**	**3**	**4**	**5**
1	Remote Proctor video was easy to view					
2	The students had no problems with Remote Proctor					
3	Questionable activity was easy to see and identify					
4	Students were easy to recognize in the video					
5	Pictures and fingerprints ensure correct student takes test					
6	Sounds were clearly recorded with the video					
7	I would like to use Remote Proctor for my online tests					
8	Remote Proctor will NOT discourage cheating					

I teach one or more online courses for UWA

Yes	
No	

Tests in my online classes are proctored

Yes	
No	

My online students must identify their own proctors

Yes	
No	

UWA should adopt the use of Remote Proctor for online classes.

Yes	
No	

Please comment on your feelings about the use of Remote Proctor:

REMOTE PROCTOR STUDENT SURVEY

Please respond to the following statements by checking the appropriate number block.
1 = Strongly Disagree; 2 = Disagree; 3 = No Opinion; 4 = Agree; 5 = Strongly Agree

		1	2	3	4	5
1	The installation procedure for the Remote Proctor was clear and easy to follow.					
2	Remote Proctor will NOT discourage cheating.					
3	I will NOT take an online class if Remoter Proctor is used.					
4	The login procedure using Remote Proctor was easy.					
5	I felt intimidated by the Remote Proctor.					
6	Using Remote Proctor is a good way to prevent cheating.					
7	Remoter Proctor is more convenient that using a live proctor.					
8	Remote Proctor should be used for monitoring online tests					
9	I don't mind giving my fingerprint for ID purposes.					
10	Enrolling credential procedures were easy to complete					
11	I had no problem installing the Remote Proctor hardware and software.					
12	All instructions were clear and understandable.					

Please check the appropriate boxes.

I am
   Male ☐
   Female

I am a
   Freshman ☐
   Sophomore
   Junior
   Senior
   Graduate

I have taken online classes at UWA
   Yes ☐
   No

I have taken online classes at other schools
   Yes ☐
   No

I have used Remote Proctor in online courses.
   Yes ☐
   No

Remote Proctor should be used for all online classes at UWA.
   Yes ☐
   No
   No Opinion

I plan on taking online classes at UWA
   Yes ☐
   No

I plan on taking online classes at another school
   Yes ☐
   No

Please comment on your use of Remote Proctor.