

## **Online accounting education: How to improve security and integrity of students' performance assessments**

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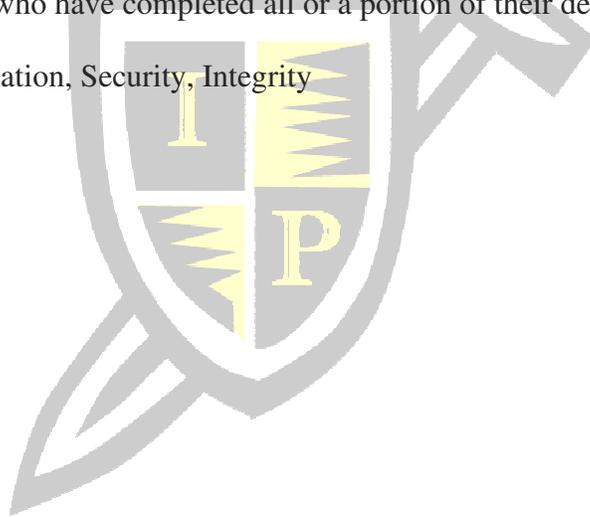
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### **ABSTRACT**

With an increase in online education, educators face the possibility of compromising convenience for the loss of security and integrity of students' course assessment. The purpose of this study is to seek and evaluate accounting faculty's opinions on improving online course assessment options. The results of this study are expected to impact not only students but also faculty, and accounting practitioners. Faculty will have to be more vigilant in planning their classes by incorporating measures that would improve the integrity and security of students' assessment of knowledge and performance. Accounting practitioners may feel more confident in considering candidates who have completed all or a portion of their degree online.

Keywords: Online Education, Security, Integrity



## INTRODUCTION

Online education is no longer an option, it has become a necessity. According to a 2016 survey of over 26,000 young people from across the world, 78% reported having taken online courses (World Economic Forum, 2017). In addition, the Babson College annual distance education survey shows that growth in online enrollments has been on the rise steadily for the past 14 years (Radicioni, 2018). As online education gains popularity and widespread appeal, preserving the quality of course delivery continues to be a major concern. Quality in online education is directly related to academic integrity. Since academic integrity is a major issue for educational institutions, the United States Higher Education Opportunity Act of 2008 demands that institutions that offer distance education make sure that students registered for a course are the same students that complete it and receive credit for the course (ACE, 2008). Preserving integrity and holding students to the highest level of honesty in education is particularly important when course delivery takes place in an uncontrolled environment (Campbell, 2006). Thus, it is extremely critical for the educational institutions to develop a system of course delivery that is reliable and secured throughout (Grijalva, Nowell, & Kerkvliet, 2006).

## ACADEMIC INTEGRITY

Temptations for violating academic integrity and resorting to fraud and trickery among students is not a new phenomenon and is not limited only to online education. Several academic studies have documented widespread cases of dishonesty committed by students at all levels. In a study of 14,000 undergraduate students over a four-year period, an average of 61% reported cheating on the exams (Gabriel, 2010). In a similar study, Novotney (2011) found that two-thirds of undergraduate students included in the study admitted to cheating in their courses. Admission of cheating was even greater among college alumni. A great majority of the respondents (82%) reported committing academic dishonesty and cheating during their past undergraduate years (Novotney, 2011). Although there is no doubt that students cheat, the literature is void of evidence concerning the prevalence of cheating in online courses (Malesky et al, 2016). Past studies have shown that approximately 75 percent of college students have cheated at least once throughout their college education (Malesky et al, 2016).

Clearly, it is more convenient for students, particularly for those who do not have the time for a commute to the campus to attend a traditional class to consider the online option. However, the problem with online education is that some think of it as a course delivery system with little or no monitoring mechanism, making it easy to cheat. This problem has been one of the reasons that many have started to question the integrity of online education. Is there a greater likelihood of cheating when exams are not being administered on campus and are taken at remote sites? Also, with the large amount of resources available online, such as the Internet, isn't it easier for students to commit acts of academic dishonesty?

Academic integrity is central to the process of learning in degree granting institutions. The responsibility for creating a culture where academic integrity is maintained lies with the institutions offering the curriculum required for their programs. Instructors are to make sure to design their courses in such a way that there is little or no opportunity for students to violate academic integrity (Swartz and Cole, 2013).

Exactly why are many concerned with the violation of integrity in education? The reason is that, when students cheat, not only are we graduating students that lack the adequate

knowledge, but we are also graduating unethical citizens. Iyer and Eastman (2006) believe that if a student cheats in college, chances are they will cheat once they start working. “There is an increased need for business schools to address academic dishonesty because what students learn as acceptable behavior in the classroom impacts their expectations of what is acceptable professionally” (Iyer and Eastman, 2006, p. 101). If they could get away with it in school, there will be a higher probability that they will carry it with them into the real world. In their study, Iyer and Eastman (2006) found that business students are ranked the highest cheaters among college students.

There are various strategies for maintaining the integrity of online exams. These range from personally monitoring of the exams to the use of fingerprint authentication and webcam to monitor students’ movements during the exams (Albers, 2007; Jortberg, 2010).

## **MODES OF COURSE DELIVERY**

There is a wide range of instruction modes that academicians can choose from. At one end of the spectrum is the traditional face-to-face mode which requires all course materials to be delivered on campus. At the other end is the fully synchronous or asynchronous modes which expect all course materials to be delivered online. Students are not required to go on campus for any portion of the course. Depending on the amount of time or resources one is willing to commit, a variety of other modes of delivery are also available. These modes may involve the inclusion of web-assisted materials such as syllabi, homework, and other assignments, to the delivery of all materials online except for certain on campus activities such as taking exams and making presentations. We are going to refer to this group as hybrid course delivery.

## **ONLINE VERSUS FACE-TO-FACE**

Previous studies have examined the effectiveness of different modes of course delivery. In a study of undergraduate students, those who were enrolled in hybrid classes showed a higher degree of satisfaction compared to those who were taking an online only class (Lim, et al, 2008). In addition, students in the hybrid class performed better on exams than those in the online only class. The results of this study show that the hybrid course delivery is more effective than strict online delivery. In another study, Tutty and Klein (2007) compared undergraduate students’ performance in face-to-face classes with online classes. They found that students in face-to-face classes significantly outperformed those who were taking online classes.

In a meta-analyses research sponsored by the Department of Education, Means, et al (2010) searched the literature during 1996-2008 and found a total of 1,132 studies that dealt with distance learning. Among these, only 176 used an experimental or quasi-experimental approach to identify student learning outcomes. Some of these studies contrasted online education with face-to-face instruction while others compared online learning with hybrid course delivery. The overall conclusion is that instructions provided in hybrid programs were more effective compared with that of online course delivery. Online learning was not found to be more effective than traditional instructions (Means, et al, 2010). From these findings one may conclude that purely online education is not as effective a course delivery option as those that use face-to-face delivery or perhaps a blended or hybrid course delivery approach.

In a similar study McCluskey (2015), decided to extend the previous research findings by comparing student achievement in graduate courses across comparable online and face-to-face

courses. The author used a sample of 1021 students to investigate whether previous results derived from examining undergraduate courses hold at the graduate level. The sample included part-time MBA students enrolled in eight courses over a three-year term. Each course was taught in both online and face-to-face mode by the same instructor. The results corroborate the findings of the previous research at the undergraduate level that failed to prove students' performance in online classes surpass that of the traditional course deliveries.

While online education has had widespread appeal, it has not yet gained full support among students and employers. In a recent study, O'Neill and Sai (2014), asked students in a face-to-face course with an identical online counterpart, why they selected to enroll in the section with live lectures over the online option. The primary reason reported by students for taking the face-to-face class was that they believed they learn more from the traditional course than the online option.

To examine the attitudes of employers, 18 employers in all areas of dietetics were interviewed and asked about their attitudes toward online education versus face-to-face course delivery (Dehpahlavan, 2013). About half of the sample exhibited negative perceptions about online teaching.

In a recent study accounting employers were asked how they perceive the value of online accounting coursework at the undergraduate and graduate level (Grossman and Johnson, 2016). The study used a questionnaire to seek the opinion of a sample of 254 accounting professionals working in either public accounting, private accounting, government, education, or other areas of accounting. By using a 7-points Likert scale the participants were asked "How willing would you be to extend an offer of employment to the applicant?" The range of responses included, traditional, hybrid, and online course offerings. The results revealed that accounting employers favor the hiring of graduates from face-to-face or hybrid programs more compared to entirely online programs. However, accounting firms show an increasing desire to hire graduates from programs that offer online courses. The implications are that as demand for online course offerings continue to increase, institutions of higher education must continue to improve the quality of online programs. This will be possible by: (1) delivering relevant knowledge, competencies, and skills to the students, (2) improving the security of course delivery, and (3) demonstrating to employers that graduates of online programs are as qualified as those of the traditional programs. It is imperative that the instructors enhance the quality of their class components including assignments, quizzes, and exams.

## **THE STUDY**

The purpose of this study is to assess accounting faculty perceptions of the quality of online accounting education and to examine the possible options for improving it. The term quality herein refers to the integrity and security of the assessment techniques used in the course. The quality of online course delivery can possibly be improved by reducing or eliminating dishonesty and cheating on exams and assignments. The remaining elements of the course including the course contents, length and quality of lectures, course durations, instructor's knowledge and qualifications, course pre-requisites, etc. are to remain the same between the online and face-to-face versions.

To reduce or possibly eliminate the acts of academic dishonesty instructors and educators can resort to the use of remote proctoring that prevents students from online searches or requiring students to go to campus or a testing site for taking the examinations. A course

generally consists of a midterm and a final; when possible, a professor can make arrangements for students to come to campus to be proctored for those exams. Despite the fact that studies have indicated that students have committed acts of academic dishonesty, the results are erratic when it comes to whether more students cheat in online courses or face-to-face classes.

While technology has given students greater access to more resources on the Internet, it has also increased the chances for students to cheat. The Internet provides a channel for purchasing term papers, course test banks, and solution manuals for class textbooks from Internet vendors (Simkin and McLeod, 2009). Massive open online courses (MOOCs) utilize a technology called the Respondus LockDown Browser by which the student is being watched while they are taking the exam and the software would record the number of mouse clicks. Professors could utilize this technique for online courses by implementing the remote proctoring program. This software could be more efficient than having a professor constantly observing the students. Remote proctoring software would give a warning if a student's eyes start to stray somewhere else other than their own screen. If a student starts to look elsewhere, the professor gives a warning via videoconferencing (Eisenberg, 2013).

The above discussion leads to our research questions.

**Research Question 1:** Are there significant differences between the security and integrity of online and face-to-face accounting courses offered by accounting degree programs?

**Research Question 2:** Are there significant differences between the security and integrity of online and face-to-face accounting courses offered by the accounting degree programs that are AACSB accredited and those that are not?

**Research Question 3:** Are there significant differences between the security and integrity of online and face-to-face accounting courses offered by the accounting degree programs based on the school's degree offerings (undergraduate vs. graduate)?

**Research Question 4:** Are there significant differences between the security and integrity of online and face-to-face accounting courses offered by the accounting degree programs based on the schools' source of funding (public vs private)?

**Research Question 5:** What are the most effective strategies for safeguarding the security and integrity of online instructions used by faculty teaching online and hybrid courses?

## DATA COLLECTION

A questionnaire was developed to collect the data for this study. The questionnaire was emailed to 6,939 accounting faculty in 921 universities across the United States. The participants were asked to complete all sections of the questionnaire including demographic questions. They were assured strict anonymity. A second and third email was sent to increase the response rate, if the questionnaire was not returned within one month. A total of 895 faculty responded to the email request to participate. From the 895 responses, 229 of them indicated that

they were on leave, retired, didn't teach online, or are on sabbatical and therefore could not complete the survey.

## RESULTS

A total of 591 complete usable responses from accounting faculty in the United States were collected from multiple mailings of the questionnaire. Table 1 contains a summary of the demographic information of our participants. Three hundred and forty-five male faculty (59%) and 243 female faculty (41%) participated in the study. The majority of the participants were over the age of 41, with 39% of the total participants being over the age of 60. Over half of the participating faculty had over 21 years of accounting teaching experience. Twenty six percent of the participating faculty had between 10 and 20 years of accounting teaching experience, with the remaining 24% of participants having less than 10 years of accounting teaching experience. Seventy three percent of the participants had taught some type of distance education class. The majority of the participating faculty taught online asynchronous and/or hybrid classes (58%). See all tables in the appendix.

Table 2 presents a summary of the types of institutions where our participating faculty worked. The majority of the participating faculty worked at public universities (67%), with the remaining participants working at private universities (33%). Only 12% of the universities had their distance education accounting classes certified by Quality Matters.<sup>1</sup> Most of the schools were AACSB accredited (84%), with 48% having both School and Accounting accreditation. Nearly all of the participating faculty worked at schools that offered graduate degrees (97%). Forty-one percent were doctoral granting institutions, 56% offered master's degrees and the remaining 3% were primarily undergraduate schools. See all tables in the appendix.

Our first research question looked at accounting faculty perceptions on whether there are significant differences between the security and integrity of online and face-to-face accounting courses offered by the accounting degree programs. That results indicate that overall faculty perceive assignments, quizzes and exams given in classes using a face-to-face mode of delivery to be more secured than other modes of delivery. This is followed by hybrid classes, where exams, assignments and quizzes are perceived to be more secure than both synchronous and asynchronous modes of course delivery. When comparing synchronous online and asynchronous online modes of delivery for all schools participating in the study, participants perceived the synchronous mode to be significantly more secured than asynchronous mode ( $p > 0.05$ ). Hybrid classes were perceived to be significantly more secured than online synchronous classes  $t(589) = 2.112, p = 0.035$ . Table 3 presents a summary of faculty perceptions in this regard for all schools that participated in the study. See all tables in the appendix.

In terms of accreditation, our second research question explores whether there are significant differences between the security and integrity of online and face-to-face accounting courses offered by the accounting degree programs that are AACSB accredited and those that are not. Accounting faculty at non-AACSB accredited schools perceived the synchronous mode of online class delivery to be significantly less secure than did faculty at AACSB accredited schools  $t(588) = 1.931, p = 0.05$ . A similar result was found when comparing faculty perceptions regarding the security and integrity of face-to-face schools at AACSB vs non-AACSB schools.

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<sup>1</sup> Quality Matters is a nationally recognized, faculty-centric non-profit organization that focuses solely on the design of the course; not the quality of the instructor or teaching ability. It involves a set of research-based best practices for teaching, particularly technology-enhanced teaching, conveniently arranged into a rubric format.

Accounting faculty teaching at AACSB accredited schools perceived the face-to-face mode of class instruction to be more secured than did accounting faculty teaching at non-AACSB accredited schools. The difference was statistically significant  $t(588) = 2.218, p = 0.027$ . See all tables in the appendix.

Our third research question relates to accounting faculty perceptions at graduate degree granting institutions vs faculty perceptions at institutions that are predominantly undergraduate. Faculty at both types of institutions tend to perceive that the synchronous mode of online course delivery to be more secured than the asynchronous mode of delivery. However, when comparing perceptions on the asynchronous mode of delivery between the two groups of faculty, we find that faculty teaching at graduate degree granting institutions perceive this mode of course delivery to be significantly less secured than do faculty teaching at predominantly undergraduate degree granting institutions  $t(588) = 1.926, p = 0.05$ . Surprisingly, although almost none of the accounting faculty teaching at graduate degree granting institutions perceived the face-to-face mode of course delivery to be the most unsecured method, a significant number of accounting faculty teaching at predominantly undergraduate institutions did  $t(588) = p < 0.000$ . Taken together, it appears that faculty at predominantly undergraduate institutions favor asynchronous online classes over face-to-face classes.

When looking at public vs private institutions, accounting faculty teaching at both types of institutions perceive asynchronous online classes to be less secure than synchronous online classes. There is also no significant difference between both groups' perception on hybrid classes being more secure than synchronous online classes. However, the results indicate that a significantly larger proportion of faculty teaching at public schools perceive face-to-face classes to be more secured  $t(588) = 2.824, p = 0.0049$ .

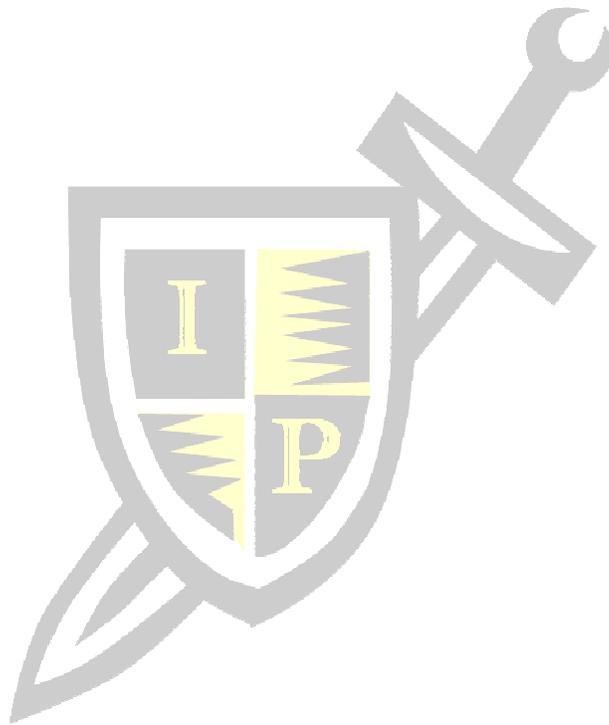
## SUMMARY AND CONCLUSION

As online education gains popularity and widespread appeal, preserving the quality of course delivery continues to be a major concern. The current study aims to assess accounting faculty perceptions of the quality of online accounting education and to examine the possible options for improving it. In our study, quality refers to the integrity and security of the assessment techniques used in the course. Reducing or eliminating dishonesty and cheating on exams and assignments in online courses can possibly improve the delivery of those courses. To examine our research questions, we developed a questionnaire and emailed it to 6,939 accounting faculty in 921 universities across the United States. The questionnaire asked participants about their distance education teaching experience, their attitudes towards, the security and integrity of assignments, quizzes and exams, and their attitudes towards strategies for safeguarding the security and integrity of online instruction.

The study results showed that overall faculty perceive assignments, quizzes and exams given in classes using a face-to-face mode of delivery to be more secured than other modes of delivery. Faculty also perceived exams, assignments and quizzes given in hybrid classes to be more secure than both synchronous and asynchronous modes of course delivery. Additionally, participants overall perceived the synchronous mode to be significantly more secured than asynchronous mode. Faculty perceptions differed between those at AACSB vs non-AACSB schools, as well as graduate degree granting institutions vs faculty perceptions at institutions that are predominantly undergraduate.

As with other survey research, this study is subject to several limitations. The sample

used in the current study was drawn from accounting faculty in all 50 US states. Therefore, the results may not represent the views of accounting faculty in other countries. Future studies can access faculty perceptions in other countries. A better understanding of what works and what doesn't work effectively could lead to improvements in the quality of online course delivery with respect to the integrity and security of the assessment techniques used in the course.



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## APPENDIX

Table 1  
Demographic Information

<b>Panel A: Gender</b>	<b>Percentage</b>
<b>Male</b>	58%
<b>Female</b>	41%
<b>Panel B: Age Range</b>	
<b>20-30</b>	1%
<b>31-40</b>	11%
<b>41-50</b>	19%
<b>51-60</b>	31%
<b>&gt;60</b>	39%
<b>Panel C: Teaching Years</b>	
<b>0-10</b>	24%
<b>10-20 y</b>	26%
<b>&gt;= 21</b>	50%
<b>Panel D: Type of Distance Education</b>	
<b>Online Synchronous</b>	3%
<b>Online Asynchronous</b>	25%
<b>Hybrid</b>	14%
<b>Synchronous and Asynchronous</b>	2%
<b>Synchronous and Hybrid</b>	3%
<b>Asynchronous and Hybrid</b>	19%
<b>All three</b>	8%
<b>None</b>	27%

Table 2  
Participating Institutions

<b>Panel A: Type of University</b>	
<b>Public</b>	67%
<b>Private</b>	33%
<b>Panel B: Certified by Quality Matters</b>	
<b>Yes</b>	12%
<b>No</b>	59%
<b>N/A</b>	29%
<b>Panel C: AACSB Accredited</b>	
<b>Accounting and School</b>	48%
<b>School only</b>	36%
<b>No</b>	17%
<b>Panel D: Highest Degree</b>	
<b>Bachelor's</b>	3%
<b>Master's</b>	56%
<b>Doctorate</b>	41%

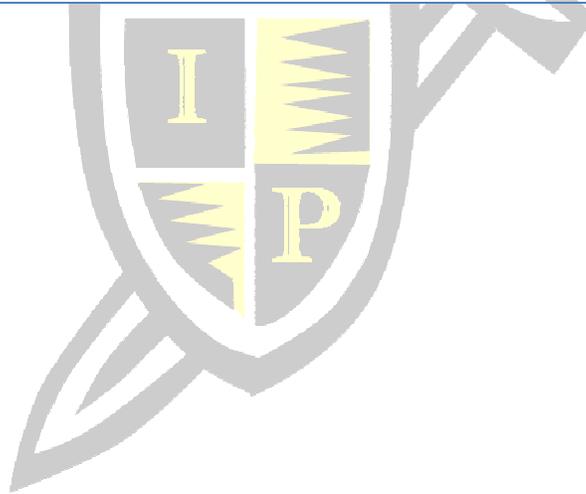


Table 3

Faculty perceptions on the Security and Integrity of Exams, Quizzes, and Assignments Given in Courses using Various Modes of Delivery (Percent)

<b>Rate for Security and Integrity</b>							
	Most Secured	Secured	Somewhat Secured	Neutral	Somewhat Unsecured	Unsecured	Most Unsecured
<b>Synchronous</b>							
AACSB Accredited	5%	19%	27%	20%	14%	11%	3%
Not AACSB Accredited	4%	20%	25%	24%	10%	9%	7%
Offers Grad Degree	5%	19%	27%	20%	13%	11%	4%
Undergrad Only	6%	24%	18%	41%	0%	6%	6%
Public Schools	4%	19%	26%	22%	13%	11%	5%
Private Schools	6%	19%	28%	19%	13%	11%	3%
All Schools	5%	19%	27%	21%	13%	11%	4%
<b>Asynchronous</b>							
AACSB Accredited	1%	10%	22%	14%	18%	18%	17%
Not AACSB Accredited	3%	12%	14%	15%	21%	19%	15%
Offers Grad Degree	1%	10%	21%	14%	18%	18%	17%
Undergrad Only	6%	12%	12%	29%	29%	0%	12%
Public Schools	1%	10%	23%	14%	18%	17%	17%
Private Schools	3%	10%	17%	16%	20%	19%	15%
All Schools	2%	10%	21%	15%	18%	18%	17%
<b>Hybrid</b>							
AACSB Accredited	7%	28%	31%	19%	10%	4%	1%
Not AACSB Accredited	5%	29%	36%	15%	8%	3%	3%
Offers Grad Degree	6%	28%	32%	18%	10%	4%	1%
Undergrad Only	18%	18%	29%	29%	6%	0%	0%
Public Schools	7%	29%	30%	17%	11%	4%	1%
Private Schools	6%	26%	34%	20%	8%	5%	2%
All Schools	7%	28%	32%	18%	10%	4%	1%
<b>Face-to-Face</b>							
AACSB Accredited	55%	25%	13%	4%	2%	1%	0%
Not AACSB Accredited	48%	34%	4%	7%	4%	1%	1%
Offers Grad Degree	54%	27%	12%	4%	2%	1%	0%
Undergrad Only	47%	18%	12%	18%	0%	0%	6%
Public Schools	55%	27%	13%	4%	2%	0%	0%
Private Schools	53%	25%	10%	6%	3%	2%	2%
All Schools	54%	26%	12%	4%	2%	1%	1%

Table 4  
Strategies for Safeguarding the Security and Integrity of Online Instructions

Strategy	Most Secured	Secured	Somewhat Secured	Neutral	Somewhat Unsecured	Unsecured	Most Unsecured
<b>ProctorU</b>	10%	35%	29%	19%	4%	2%	1%
<b>Signature Track</b>	2%	21%	35%	31%	6%	4%	1%
<b>Combo</b>	16%	36%	21%	23%	2%	2%	1%
<b>Live Proctoring</b>	54%	30%	7%	6%	1%	1%	1%
<b>Turnitin</b>	9%	36%	33%	15%	4%	2%	1%
<b>Only Face-to-Face</b>	32%	17%	9%	23%	5%	6%	7%

