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A Comparison of Learning Outcomes from Online and Face-to-Face Accounting Courses at a Four-Year University

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Abstract

Online education continues to evolve and grow dramatically at colleges and universities across the globe. Institutions seek to meet the new demands by offering online distance educational opportunities while increasing cash flow for their college. The purpose of this quasi-experimental ex-post-facto study was to compare student outcomes from two Principles of Accounting courses both delivered in two methods of instruction: traditional face-to-face and an online asynchronous format. The online content for both courses was developed with assistance of academic technology professionals at the participating university. Student learning was measured as final course grade where all exams were administered by a testing center. The sample size included 124 students from the online sections and 433 students from the traditional face-to-face sections.
The results indicated students performed significantly better in the face-to-face classes than the online sections. Female students scored significantly higher than male students in both methods of instruction. ACT composite score, ACT math score, GPA, gender, and method of instruction all were significantly related to final course grade. Age was not a significant predictor of final course grade but in the online sections nontraditional students (age 25 and older) scored significantly higher than students under the age of 25.

Keywords: Online, Face-to-Face, Student Performance, Gender, ACT, GPA

Introduction

Online education continues to evolve and grow dramatically at colleges and universities across the globe. Today's society is comprised of people who are increasingly busy with work and family obligations and who are looking for more flexible and expedited avenues for higher education. Institutions seek to meet these new demands by offering online distance educational opportunities while increasing cash flow for their college. Unfortunately the pitfalls to this rush to meet online demand results in what some researchers assert are inadequate quality content and curriculum. Morgan (2015) found online or distance accounting programs have much lower average CPA pass rates than their matched face-to-face counterparts with equivalent student selection criteria. Others indicate there are not significant differences in the outcomes from online learning compared with traditional face-to-face classes. According to the U.S. Department of Education (2010), a meta-analysis revealed when used by itself online learning appears to be as effective as conventional classroom instruction, but not more so. Much of the research has been conducted on non-quantitative courses, quantitative courses with small sample sizes, or large sample sizes that are not controlled for quality of online content, delivery, or verification of learning.

The development and use of online courses for instruction have grown at an incredible pace in recent years enabling students to learn from home or business locations far removed from a brick and mortar campus. The busy lives that individuals lead justify their willingness to pay the added cost that higher education institutions require for online courses. Online learning provides the opportunity for asynchronous time frames in a low distraction, 24-hour-a-day, seven-day-a-week environment, and many students embrace this method of instruction for the convenience.

The advent of online instruction has not been without criticism as a means of increased revenue streams and lower faculty costs at the expense of reduced effectiveness in meeting curriculum learning objectives and student performance measured as grades. The general perception is an online education is not as robust as the traditional face-to-face method of instruction (Brazina & Ugras, 2014; Verhoeven & Wakeling, 2011). Online testing for course progress is typically in a non-proctored environment and if monitored at all is within the learning platform's

constraints of being time bound. Authenticity by educators is a key concern for students enrolled and completing coursework in an online environment.

Much of the existing research has found mixed results leading to this study of a comparison of quantitative courses, Principles of Accounting I and II, delivered in a traditional face-to-face format and as an asynchronous online format designed by academic technology instructors. The quality of the online content delivered in an asynchronous method of instruction would influence the ability for a student to master the learning objectives and final grade. Chen, Jones and Moreland (2017) stated their results indicate a student's ability to work in an intentional and motivated manner, and the greater cognitive effort that results, carries more weight than does the course delivery method and may also translate into a more positive evaluation of the course.

There seems to be very little disagreement that rigorous investigative research is needed on quantitative courses such as accounting to determine if a significant difference exists in learning outcomes from an online method of instruction (Schmidt, 2012). The Association to Advance Collegiate Schools of Business (AACSB) expects continuous process and quality improvements and the onus of proving exceptional accounting education rests with the college or university.

Review of the Literature

Cost Comparison of Two Methods of Instruction

Several literature reviews cited the lower cost as a reason to expand online education. Sharon and Gloek (2004) observed one cost benefit is the ease of scalability because online is not hampered by requiring a brick-and-mortar location to instruct students. Sitzmann, Kraiger, Stewart, and Wisher (2006) indicated online classrooms were 13 percent more effective for teaching declarative knowledge and 20 percent more effective in teaching procedural knowledge than face-to-face instruction. The authors stated that well-controlled studies of the cost effectiveness of online to traditional instruction are rare. Most colleges charge additional fees for online delivery. The university participating in this study assesses $40 per credit hour for undergraduate courses and $50 per credit hour for graduate level courses.

Do Age, Gender and Learning Styles Matter?

A variety of issues arise concerning the influence age and gender exert on learning styles and the effectiveness of the method of instruction. Dotterweich and Rochelle (2012) documented the average age of students in an online course (25.81) was statistically greater than the average age of a traditional course student (23.61). The differences in gender were not statistically significant but were supported by prior research that more females enrolled in an online course.

Daymont, Blau, and Campbell (2011) stated flexibility enticed students to choose online over a traditional format because it enabled them to work at their own pace despite the perceived lack of an appropriate medium to communicate with instructors. Students with favorable self-discipline preferred online courses, and students who preferred traditional classrooms cited the face-to-face interactions with other students and faculty as reason for their preference. The second most common reason students preferred traditional courses was the structure of a classroom led to a perceived facilitation of learning. Meisel and Marx (1999) highlighted that online discussions are less animated than traditional discussions, and students described computer communication as more professional than face-to-face discussions.

Rovai, Ponton, Wighting, and Baker (2007) documented students at the undergraduate level had an average intrinsic motivation score of 17.36 for traditional courses and 20.20 for online courses indicating a greater motivation in online undergraduate students. For extrinsic motivation undergraduate students in traditional classrooms had an average score of 20.75 versus 21.95 for online. Fodor (2003) also indicated students who wanted to do well in online courses generally were initiators and self-motivated. There was less interaction with peers and professors and required students to take initiative to develop interactions such as posting on discussion boards.

Rogers (2015) examined the differences in personality for online students defined as locus of control (LOC). Internal LOC students performed better in online courses than external LOC students. They were more organized, detail oriented, and analytical which all assist in successful online learning. Internal LOC participants tended to seek more information. This was beneficial because instructors were not immediately available to answer questions, forcing students to seek answers on their own. Internal LOC students preferred self-paced work, a hallmark of online courses, and were self-motivated. External LOC students performed worse in online courses. They thrived in group settings and interactions with peers and professors. These latter two features were severely limited in online courses. Gratton-Lavoie and Stanley (2009) showed older students gravitated more towards online education probably due to flexibility in scheduling. Males were 12 percent more likely to choose online; however, the most frequent occurrence of an online student was older females. Each year of age increased the likelihood to select the online method of instruction by 2 percent. Business majors were less likely to select online courses compared to other majors. Females improved more in knowledge of material from an online course than any other group (males in traditional face-to-face courses, males in online classes, and females in traditional face-to-face courses).

Fleming, Becker, and Newton (2017) indicated age did not affect a student's ability to be successful in an online course. Rather, the determinants in successful use and intent for future use of online programs were determined by the authenticity, as in real world application of course material, the technological support available, and low complexity of material. Hernandez-Julian and Peters (2012) stated males tended to submit on average one more homework assignment for online courses than traditional courses. There were no differences for gender between the two methods of instruction. When given the option, younger students, defined as less than 23 years-old, were more likely to submit homework online than in F2F classes. However, when given the option to submit online and not attend class most continued to attend. Attendance demonstrated that younger students perceived online interaction as a component of class rather than a substitute. Older students were more likely to submit the homework and then take the option to miss class. Students who submitted online homework earned an average grade of 6 percent higher than traditional course homework submissions.

Borstorff and Lowe (2007) observed 92 percent of students cited convenience as one of the reasons to take an online course. Forty-three percent of students believed that the quantity of interaction between a professor and student is less in online courses. However, only 17 percent believed that the quality of an online class was less than traditional face-to-face instruction. Fifty-four percent of students expended more time learning material in an online classroom which alludes to less efficient use of time as it takes longer to comprehend the same amount of material.

Authenticity of Testing

Kuzma, Kuzma, and Thiewes (2015) stated over 50 percent of students perceived there is a greater ability to cheat in online courses. Fifty percent agreed and 24 percent disagreed that online courses resulted in less learning. However, most students continued to enroll in the course for flexibility and convenience to work at their own pace. Forty percent of students believed online courses were easier with 25 percent "more difficult". Forty percent preferred traditional courses while 15 percent desired online courses. Ucol-Ganiron (2013) also observed cheating was more prevalent in online courses. Prince, Fulton, and Garsombke (2009) documented the average score for online exams were 87 percent if not proctored and 79 percent if the tests were proctored. This may indicate a potential of cheating and academic misconduct on online exams that are not proctored.

Perceptions of Students Regarding the Mode of Instruction

Nguyen and Zhang (2011) revealed 77 percent of students 30 years of age and older preferred the online course whereas only 68 percent of 20 to 24-year-olds preferred online. Students believed there is more material to learn and expended more time on the content for online courses. However, students missed the opportunity to ask questions real-time in asynchronous online courses. According to Nguyen and Zhang, students believed they learned sufficient knowledge online to continue with other curriculum in the same discipline but not to the extent that they learned more than traditional F2F courses. Adult students enrolled in online courses were more concerned about missing the F2F interaction from traditional courses compared to the less than 25-year-old students. Adult students, defined as the age group of 25 and over, had a stronger belief that knowing relative performance to their classmates positively affected their learning progress. Students perceived instructors to be more lenient in online courses and did not believe that the grade in an online course reflected their true performance.

O'Neill and Sai (2014) found more than 58 percent of students enrolled in the traditional course because they believed they would learn more. Fifty percent of students cited a general dislike of online courses and 25 percent of students believed they could earn a better grade in traditional courses. O'Neill and Sai's study controlled for performance by requiring proctored exams for all online courses included in the sample.

GPA as a Predictor of Outcomes

Terry, Macy, Clark, and Sanders (2015) found that student ability, GPA, and effort were positively correlated with higher course grades. Students who were in the traditional course and had access to online lectures to review the information scored 3 points higher on the final exam. This indicated that lectures are crucial to knowledge and cannot be omitted from online courses.

Wiechowski and Washburn (2014) observed students in the online course had higher GPAs than students in traditional courses but the difference was not statistically significant. Daymont and Blau (2008) also found GPA had a significant positive relationship to final score. However, students in the online course were farther along in their programs and may have been a reason for the greater mastery of material. Gratton-Lavoie and Stanley (2009) discovered students with a higher GPA were more likely to select online classes than lower GPA students, and for online courses GPA was significant in determination of the overall grade in the course.

Bunn, E., Fischer, M., and March, T. (2014) uncovered mixed results, meaning no clear indication of a method that is more efficient or effective, with no significant differences in assessments, but performance was significantly different with face-to-face grades higher than online participants. Students in the traditional classroom (Intermediate Accounting I) had a higher average GPA than online. Generally, students with higher GPAs chose online, but accounting is a unique subject and may have impacted that self-selection. More females chose online and supported prior research on this self-selection of instructional method. Course grades were significantly higher in the

traditional course. More face-to-face students agreed that the instructor was an effective presenter, encouraged questions, and fairly and impartially graded assignments.

What Method of Instruction is Superior

Schmidt (2012) demonstrated that students taking Principles and Intermediate Accounting online performed as well as the face-to-face students on the testing procedures. There were some differences on performance of specific learning objectives where online students fared better than face-to-face students and other learning objectives where face-to-face understood better than online students.

In McFarland and Hamilton's (2006) study instructors were provided with scripts to ensure the same material was delivered through both online and traditional instruction. There was no significant difference in student grades or student satisfaction with the course. However, in a traditional course eight factors were significant in determining student grades where only three factors were significant in grades for online students. This indicated that traditional classrooms provide a more dynamic atmosphere that influenced student experience. The authors pointed out traditional classes are instructor-centered but a properly designed online program is learner-centered as students referred back to online course content and proceeded at their own pace.

Walstrom (2014) revealed that students in the traditional course were more satisfied with the course than online students, but this was not statistically significant. Students in the online course perceived the exams were more appropriate to the course. According to Walstrom, students believed the most effective online course had all material online at the start of the semester.

Mondal and Culp (2017) established that students in the online course scored half a letter grade higher than students in the traditional course after controlling for covariates (online students were predominantly females, older, higher GPA base, and Caucasian). GPA, method of instruction, and age all had a statistically significant impact on grade but gender did not. Sohn and Romal (2015) demonstrated students performed better in the face-to-face class of macro and micro economics courses. Thirty percent of students dropped the online course but only 21 percent dropped the traditional course.

Metrejean and Noland (2011) indicated that there was no difference in a CPA firm's willingness to hire an online Masters of Accountancy graduate (MAcc) over a traditional program's MAcc graduate. A CPA firm's greater determinant in the willingness to hire an accounting graduate was an individual's passing parts or the entire CPA exam. This may indicate that accounting is a field where the degree is not as important as certification as certification validates the learning process that prepares one for the CPA examination. Tabatabaei and Gardiner (2012) also documented recruiters failed to find an applicant more or less desirable based on a dominant method of instruction (online student versus traditional student); however, this was for information systems students where online is a large percentage of their job demands. Recruiters valued work experience and class performance more strongly than method to obtain degree. Conversely several authors found evidence that students from online programs do face bias. Wright (2014) determined employers hesitated to hire online degreed candidates because of the perception of a lack of quality. The author indicated 96 percent of managers chose a student with a business degree from a traditional method of instruction compared to an applicant who earned a degree from an online program. Managers related the greatest concern was not the lack of prestige name of an online university but the lack of social interaction with other students and faculty, a need reflected in the workforce. Roe, Toma, and Yallapragada (2015) agreed that there is a general public perception that online degree programs lack quality and rigor.

Jacobs (2014) encouraged collaboration through group work in light of the continued growth of online instruction. Students reported that they often felt disconnected in distance classes and formation of groups enhances communication, collaboration, working through conflict, and sharing in credit for accomplishments. There are challenges to group work and norms must be established along with development of trust among members. Meaningful assignments must be designed to require participation by all group members. Success of group work, defined as achieving learning outcomes, must be assessed using a variety of techniques such as self-assessment, reflection papers, minute papers, role play, and a questions wall. These learning techniques are transferable to the work place as team work is the essence of business today.

Chen and Jones (2007) concluded in an MBA accounting course that a traditional class participant's believed clarity of instruction was better than a blended class. On the other hand, the blended learning was believed to have improved analytical skills of students. The Association to Advance Collegiate Schools of Business (AACSB) suggested problem-solving skills as an example of a desirable goal for undergraduate programs and explicitly called for graduate programs to further these skills in their students (AACSB, 2006). The American Institute of Certified Public Accountants (AICPA) in its core competency framework also explicitly calls for problem-solving skills as necessary for all new entrants into the accounting profession, regardless of the sector in which they work (Chen and Jones 2007).

Many students preferred structure and a drawback of online, according to prior research, is the lack of structure. Students enrolled in online courses received instant feedback on questions answered and believed this fostered enhanced learning compared to the traditional course where it required several days for the professor to

grade assignments. Online students also were allowed to complete the homework multiple times further enhancing learning objectives by reinforcing material.

Findings

The purpose of this quantitative research that encompassed a quasi-experimental ex-post-facto design was to compare student outcomes (measured as final grades) from Principles of Accounting courses delivered in two instructional methods: face-to-face (F2F) and a totally online asynchronous format. Two professors were involved in the study each delivering the course curriculum in both an online and F2F format. The use of university Academic Technology Services (ATS) to develop the online curriculum ensured the online content was above average for both professors. Both professors received remuneration for meeting the rubrics defined in the ATS' MOU (Memo of Understanding) for asynchronous online development. The quality of the pedagogy was similar between the two professors and in content delivered in both modalities. Final grade was determined by multiple exams weighted equally across the semester to ensure an accurate final student assessment of learning in determination of the official final letter grade. In order to maintain independence and ensure control and authenticity of the data the registrar's office supplied final letter grade which was then converted to a numerical GPA for analysis:

Official Grade	Number Assigned
A	4
A-	3.7
B+	3.3
B	3
B-	2.7
C+	2.3
C	2
C-	1.7
D+	1.3
D	1
F	0
FN	0
W	blank

The participating university is AACSB accredited for both business and accounting and Assurance of Learning (AOL) measures for these courses were met in the 2020 Continuous Improvement Review.

The relationship of ACT score, GPA, gender, and age to mean final course grade were analyzed. The number of subjects in this study was 557 students from a public university in the Southeast United States enrolled in Principles of Accounting I and II classes. Archived data were provided by the participating university's Office of Institutional Research. The time frame was summer 2015 through summer 2017. Each student was identified by an 8-digit number assigned by the system's data base administrator to protect the anonymity of the students.

Research Question 1

Is there a significant difference in composite ACT scores between students enrolled in a face-to-face method of instruction and students enrolled in an asynchronous online format?

An independent-samples *t*-test was conducted to evaluate whether the composite ACT scores were significantly different between asynchronous online class and a face-to-face students. The mean overall ACT score was the test variable and the grouping variable was the method of instruction for the class. The test was not significant, $t(420) = .56$, $p = .574$. The η^2 index was .01 indicating a small effect size. Students from face-to-face classes (M = 23.22, SD = 3.96) on average scored about the same on the composite ACT as students from asynchronous online classes (M = 22.95, SD = 4.00).

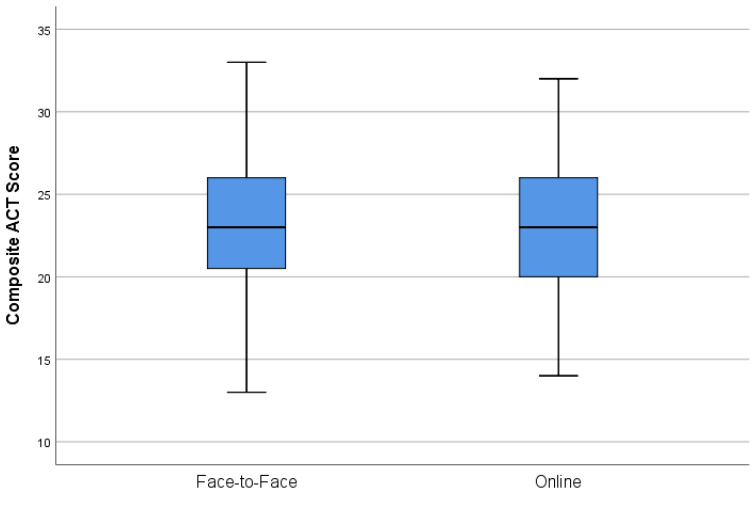

Figure 1. Distribution of Student ACT Scores in Each Mode of Instruction

The 95 percent confidence interval for the difference in means was -.68 to 1.23. The distributions of ACT scores for the two groups are displayed in Figure 1.

Research Question 2

Is there a significant difference in students' mean final course grades between a face-to-face method of instruction and an asynchronous online format?

An independent-samples *t*-test was conducted to evaluate whether the final mean grade of Principles of Accounting students were significantly different between asynchronous online class and a face-to-face class. The overall course final mean score was the test variable and the grouping variable was the method of instruction for the class. The test was significant, $t(524) = 2.65$, $p = .008$. The η^2 index was .01 indicating a small effect size. Students from face-to-face classes (M = 2.52, SD = 1.21) on average scored significantly higher in Principles of Accounting classes than students from asynchronous online classes (M = 2.17, SD = 1.29). The 95 percent confidence interval for the difference in means was .09 to .60. The distributions of final grades for the two groups are displayed in Figure 2.

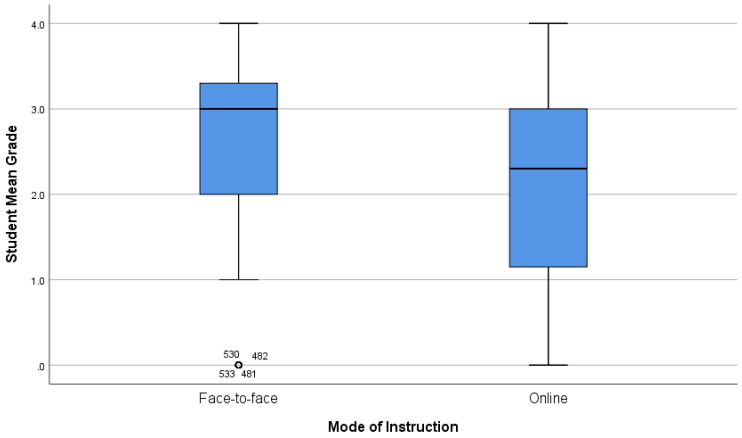

Figure 2. Distribution of Grades for Students

Method of Delivery	*M*	*SD*	*p*
Online			
Males	1.85	1.39	.001
Females	2.42	1.15	
Face-to-Face			
Males	2.38	1.20	.003
Females	2.74	1.19	

Table 1. GPA Means and Standard Deviations by Gender and Method of Delivery

It should be noted that female students scored significantly higher than male students in the Principles of Accounting classes for both online and face-to-face instruction. The means and standard deviations for the two groups are displayed in Table 1.

Also nontraditional aged students (25+) scored significantly higher than traditional aged students (18-24) in the online accounting classes but not in face-to-face classes. The means and standard deviations for the two groups are displayed in Table 2.

Method of Delivery	*M*	*SD*	*p*
Online			
Traditional Aged	2.02	1.23	.038
Nontraditional Aged	2.59	1.38	
Face-to-Face			
Traditional Aged	2.51	1.20	.964
Nontraditional Aged	2.52	1.19	

Table 2. GPA Means and Standard Deviations by Age and Method of Delivery

Research Question 3

Is there a significant difference in mean entering GPAs between online and face-to-face students?

An independent-samples *t*-test was conducted to evaluate whether mean student GPA prior to the class enrollment were significantly different between face-to-face and online classes. The mean GPA score immediately prior to the course was the test variable and the grouping variable was method of instruction. The test was significant, $t(555) = 2.97$, $p = .003$. The η^2 index was .02 indicating a small effect size. Students' entering mean GPAs in face-to-face classes (M = 3.02, SD = .78) was significantly higher than students' entering mean GPA enrolled in online Principles of Accounting classes (M = 2.78, SD = .85). The 95 percent confidence interval for the difference in means was .08 to .40. Students entered face-to-face

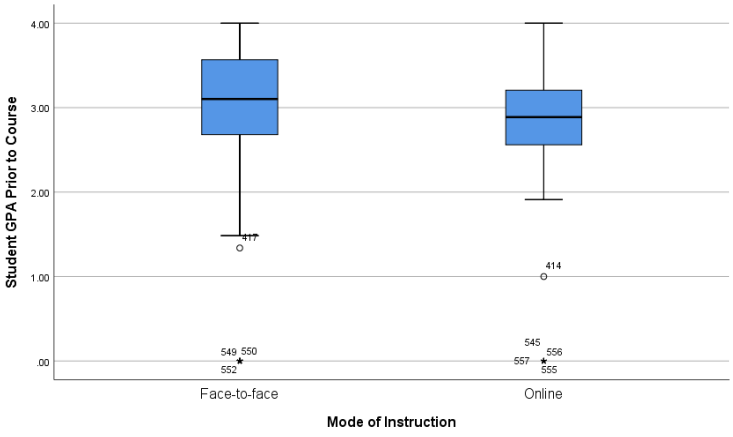

Figure 3. Distribution of Student GPA Prior to Course

Principles of Accounting classes with a significantly higher GPA than students choosing the online delivery method. The distributions of GPA by method of instruction are displayed in Figure 3.

Research Question 4

How well does the ACT composite score, GPA, age (grouped into 2 segments of below 25 and 25 and above), gender, and method of delivery selected by students predict mean final course grade?

A multiple regression analysis was conducted to evaluate how well the various factors predicted the final course grade. The predictors were five variables, while the criterion variable was the final course grade. The linear combination of these factors was significantly related to the final course grade, $F(5, 397) = 30.56$, $p < .001$. The sample multiple correlation coefficient was .53, indicating that approximately 28 percent of the variance of the student final grade in the sample can be accounted for by the linear combination of these factors.

Predictor	Correlation between each predictor and final grade	Correlation between each predictor and final grade controlling for all other predictors
Instructional Method	-.13*	-.13**
ACT Composite	.41**	.32**
Gender	0.11	.07*
Age	0.03	.07*
GPA	.42**	.33**
*$p < .05$ **$p < .01$		

Table 3. The Bivariate and Partial Correlations of the Predictors with Mean Final Grade

In Table 3 the relative strength of the individual predictors are displayed. Three of the five bivariate correlations were significant with ACT composite and GPA significant at ($p < .01$). Four of the five partial correlations were significant with instructional method, ACT composite score, and GPA significant at $p < .01$. Age and gender were significant at the .05 level in predicting final course grade.

The prediction equation for the standardized variables was as follows:

$$Z_{\text{Predicted Student Grade}} = -.11\, Z_{\text{Instructional Method}} + .31\, Z_{\text{Comp ACT}} + .06\, Z_{\text{Age}} + .31\, Z_{\text{GPA}} + .06\, Z_{\text{Gender}}$$

Conclusions

In the present study both instructors of the Principles of Accounting classes required onsite campus exams or proctored exams in bona fide testing centers across the country. Controlled testing was a key part of what classes and sections were included in the present study to reduce the potential for cheating and present data that are valid and reliable. Several literature review articles indicated cheating as a concern. Kuzma et al. (2015) stated more than 50 percent of students perceived a greater propensity to cheat in online courses. Prince et al. (2009) documented the average score for online exams were 10 percent higher than face-to-face exams. Verification of learning through proctored uniform exams is a key component of successful measurement and must be considered in robust research designs. If using online exams is the choice for testing, the use of browser lockdowns and mandatory video conferencing, like *Zoom*, for students while testing are additional measures suggested by some faculty to curb the propensity to cheat. Most online accounting software platforms, like *Pearson's MyAccountingLab* and *WileyPlus*, provide excellent testing options with random ordering of questions for one exam among many students and similar exercises with varying numbers for each student. Automatic grading with instant student feedback, including partial credit, and gradebook generation facilitate instructors' workloads.

The use of Academic Technology Services at the participating university to create the online content of these courses should also be noted. Both instructors of these Principles of Accounting classes used these university professionals available to develop a diverse curriculum that employs various mediums to engage and motivate students. The use of qualified personnel to guide online course development reinforces the findings that face-to-face class performance is significantly better than online class learning measured as final course grade.

Males made lower grades than females in online classes compared to a face-to-face method of instruction. Females performed better than males in both methods of instruction. GPA was correlated to course performance as was ACT composite and ACT math scores. The findings of GPA as a predictor of final grade performance was consistent with Dotterweich and Rochelle (2012) who found GPA was a significant factor in student success regardless of instructional delivery method. Students with a college ready ACT math score of 22 or higher was a strong predictor with 62 percent of the participating university's sample designated as college ready. Nontraditional aged students performed significantly better in online Principles of Accounting classes than traditionally aged students. Nontraditional aged learners may be more motivated when taking college classes and understand the value of higher education more so than the average traditionally aged student.

Recommendations for future research center around retention of knowledge from various modes of instructions and job readiness of college graduates entering the workforce. Morgan (2015) noted that the average 6-year graduation rates and average propensity to sit for the CPA exam after graduation are much lower in the online or distance accounting programs. Students engaging in online degree programs achieved a CPA passage rate that averaged 35.4%; whereas, the face-to-face institutions had an average passage rate of 44.9%. This study also begs the question of a knowledge retention difference between modes of instruction and the confidence level of students engaging in online studies in accounting. Turner and Turner (2017) found an online class outperformed face-to-face and iTV (interactive TV) sections on the initial performance evaluation; however, knowledge retention was greater in the face-to-face and iTV sections. The authors' findings suggest that diverse educational delivery methods provide unique benefits to students, but these benefits vary in relation to immediate learning outcomes and knowledge retention.

Finally, Blair (2020) conducted a study of workplace accountant and found gaps between knowledge and practice. The study suggests that entry-level accountants are not able to work real-world cases and communicate in ways that are needed by the hiring firms. The implications of Blair's study state that students should be taught in a more hands-on approach to be able to think more critically and apply their knowledge to real-world scenarios. Online course delivery presents obstacles in meeting these challenges for accounting students.

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