

Accounting and Finance Students' Perceptions of Online Learning in a Mature Online Teaching Environment

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ABSTRACT

The purpose of this study is to investigate accounting and finance students' perceptions of online education in an environment where online course delivery is mature and has been well supported. Undergraduate students majoring in accounting and finance were surveyed to identify what those preferences are. Consistent with literature, there is a preference for face-to-face learning in terms of perceived learning and satisfaction. However, convenience and scheduling issues act as strong countervailing factors propelling students toward online courses, although the impressions of online education are overwhelmingly good. Additionally, three quarters of the students found taking upper division courses online to be suitable to them. Exploratory factor analysis was then used to identify the key factors regarding online education quality and satisfaction, and six separate components were found to be both significant and reliable. The study expands literature by specifically focusing on accounting and finance education in a mature online education environment.

KEYWORDS

Accounting and Finance, Factor Analysis, Online Education, Quality, Student Perceptions

INTRODUCTION AND LITERATURE REVIEW

While there is certainly a lot of similarity in online education across disciplines, especially at a macro-level, there is a lot of variation at the mid- and micro-levels (in the business disciplines see Arbaugh et al., 2009; Arbaugh, 2013, Arbaugh, 2014), as well as across programmatic contexts (Rovai & Downey, 2010).

This article focuses on five issues that have been extensively examined in the literature, but have gotten scant attention in the accounting and finance education literature.

Reasons for online education. Convenience and flexibility are overwhelmingly the reasons reported as most important in studies reporting on the motives for students taking online courses. For example, in describing undergraduate students' drive toward online learning, Chow and Croxton (2017, 20) reported "that students covet it for its convenience". In a master's level program, Kowalski and Dolph (2014) point to convenience and flexibility as the overwhelmingly most important considerations for students. Convenience and flexibility are also the primary considerations for students in international settings (Muthuprasad et al., 2021), minority students (Yeboah & Smith, 2016), and even students living on campus (Pastore & Carr-Chellum, 2009). Business students seem to be particularly eager to take online classes because of the convenience and flexibility (Nonis & Fenner, 2012; Lee, Stringer, & Du, 2017). Other reasons are significant contributors as well; Zhang et al. (2020, 38) found that 28% of the students like the style of teaching in online courses, and that scheduling was a significant factor for 29%. Van Wart et al. (2020, 3-4) report that "even when students say they prefer face-to-face classes to online, many enroll in online classes and re-enroll in the future if the experience meets minimum expectations."

Face to face preference. In a study with relatively typical findings regarding face-to-face versus online preferences, a study with 8,000 participants found that "Students rated on-campus courses significantly higher than online courses in Communication, Faculty/Student Interaction, Grading, Course Outcomes, and Overall Evaluation; effect sizes were large" (Young & Duncan, 2014, 70). Nonetheless, there are numerous contravening findings. Tanner, Noser, and Totaro (2009) found that although business students had some reservations, they were far more likely to take and be satisfied with online courses than was reported by faculty. Wells, De Lange, and Fieger (2008) had similar findings, even though they noted student diffidence in actively participating. In a mature finance and accounting setting, one study noted that blended courses provided the greatest satisfaction, followed by fully online, with face-to-face classes lagging behind significantly (Wiechowski & Washburn, 2014). With regard to student satisfaction, it would appear that business students are far more likely to be favorable to online and blended classes than other disciplines.

Overall impressions. Even when there is a preference for face-to-face teaching, it does not mean that the impression of online learning is poor. For example, in addition to previously mentioned studies, Wong et al. (2019) found that students were satisfied with the overall quality of e-learning in accounting courses in Hong Kong despite a preference for face-to-face options disregarding convenience. Important impressions that students typically have is that "students must be more willing to teach themselves" (Dicker et al., 2018), students who have stronger generic and technological skills have higher impressions of online education (Herrador-Alcaide, Hernández-Solís, & Galván, 2019) and students who take more online classes have progressively better impressions of it (Shen et al., 2013). Despite many negative experiences during the pandemic because of the shock of the transition to online during the pandemic (Hou et al., 2021), overall it has been reported that student and faculty experience was largely favorable (McKenzie, 2021).

Most appropriate for online. As noted, generally business disciplines have been among those considered most appropriate. In an unusually positive case, McCarthy, Kusaila and Grasso (2019, 26) found that "Intermediate Accounting III students in the online and hybrid modes significantly outperformed students in the face-to-face mode." Furthermore, "auditing students in the online mode significantly outperformed students in the hybrid and face-to-face modes." Students with cognitive learning styles (i.e., visual learners) were better suited to online learning according to Eom, Wen, and Ashill (2006). Jaggars (2014) found that students generally think that easier classes are better for online courses. On the other hand, face-to-face classes are recommended or preferred by students when interpersonal skills need to be learned (Paechter, Maier, & Macher, 2010), where interaction is necessary (Kuo et al., 2013) and is not adequately promoted in an online setting (Malan, 2020; Liaw & Huang, 2013; Lee, Stringer & Du, 2017), or where classes are difficult and important (Jaggars, 2014). Because of labs and a stronger preference for instructor-led education, Mann and Henneberry (2012, 1) found that "undergraduate students (traditional and non-traditional) enrolled in engineering

majors and graduate students enrolled in anatomy, biochemistry, biology, and botany major were the least likely groups of students to select online courses.” They also found that freshman and sophomores were more likely to select online courses than juniors and seniors.

Quality factors. Following Van Wart et al. (2020), we distill the literature on student perceptions into eight factors.

Instructional quality and instructor training are related concepts found in the online teaching quality literature but are often overlapping and poorly articulated. Examples of studies that focus on these issues include Artino (2010) who examined personal factors, Al-Gahtani (2016) who used the Technology Acceptance Model, Paechter, Maier, and Macher (2010) who addressed information distribution, and Asoodar, Vaezi, and Izanloo (2016) who focused on the instructor dimension. In the study by Van Wart et al. (2020), these concepts were found to aggregate into three distinct factors. *Basic online modality* was related to competence in fundamental online teaching functions such as the use of the online grade book, ease of online submissions, and efficient grading. *Instructional design* was related to building and using a well-designed class such as providing good navigation, sufficient rehearsal opportunities, and structured feedback regarding rehearsal and testing. *Interactive online modality* was related to more advanced online competence in terms of video lectures and online interactions such as small group discussions.

Another factor almost universally identified in the literature is *teaching presence*. Eom, Wen, and Ashill (2006) investigated the important role of instructor feedback, Bray, Aoki, and Dlugosh (2008) examined the design to improve students’ content interaction, and numerous researchers have compared a range of instructional practices (e.g., Sun et al., 2008; Asoodar, Vaezi & Izanloo, 2016). So and Brush (2008) examined course structure vis-a-vis communication media, Palmer and Holt (2009) explored instructional abilities to communicate, Kuo et al. (2013) studied professional learning networks, Paechter, Maier, and Macher (2010) and Joo, Lim, and Kim (2011) discussed the perceived usefulness of various strategies to enhance teaching presence, Otter et al. (2013) compared the perceptions of faculty and students, and Mohammadi (2015) used TAM and IS success models to understand the variability of teaching factors. However, the concept is defined in substantially different ways, from sweeping definitions including instructional design, to rather narrow interpretations related to course implementation. Van Wart et al. (2020) define it as the portion of teaching that occurs in the ongoing online class, including good communications and instructions, keeping students on-task and learning efficiently, and providing customized feedback to questions and issues that arise in the course.

Cognitive presence—assisting students’ intellectual engagement with course content—has been identified as a significant factor affecting online teaching quality and student satisfaction in numerous studies. An early operational definition of cognitive presence included aspects of discourse, collaboration, reflection, monitoring, and knowledge construction (Kanuka & Garrison, 2004). These aspects have been studied in various ways such as by examining learning styles and content types (Eom, Wen, & Ashill, 2006), comparing cognitive presence in various asynchronous online learning discussion strategies (Darabi et al., 2011), contrasting learner–instructor interaction and learner–content interaction (Kuo et al., 2013), examining interactive learning environments, perceived self-efficacy, and perceived anxiety (Liaw & Huang, 2013), looking at cognitive presence as a factor in student adoption of online learning (Al-Gahtani, 2016), and investigating the interaction of cognitive presence, learner prominence, and academic performance (Galikyan & Admiraal, 2019). In a recent case study, it was found that cognitive presence was supported by “instructor responsiveness in discussion posts and creating dialogue, creating course assignments as online hands-on projects, interviewing guest speakers on specific course topics, weekly recap and orientation videos, feedback, [and] case-based discussions” (Ozogul, Zhu & Phillips, 2022). Definitions have varied leading to some conceptual overlap, but at the heart of the definitions are idea exploration, meaningful reflection, stimulating discussions, and application utility.

Many studies identify *social presence*, that is student-to-student interactions, as another factor contributing to online teaching quality and student satisfaction. Numerous studies have looked at

social presence as one of the factors determining student satisfaction in online courses (Bolliger & Martindale, 2004; Eom, Wen, & Ashill, 2006; Lee & Rha, 2009; Kuo et al., 2013; Asoodar, Vaezi, & Izanloo, 2016). Generally, social interaction is significant but moderate factor in relation to various learning outcomes such as satisfaction (Richardson et al., 2017) but not always (Sun et al., 2008). For example, social presence can be less significant in teaching in STEM and analytic professions without a higher degree of activity structuring (e.g., McCollum, 2020). Other studies have looked at the critical factors influencing student perceptions from the closely aligned idea of collaborative learning (So & Brush, 2008; Zhu, 2012). Van Wart et al. (2020) define social interaction operationally as inclusion of student goals, providing a variety of student-to-student interaction mechanisms, leading to a sense of a learning community.

Online social comfort has sometimes been defined as ease-of-use and comfort-with-technology, including by Hong (2002), Bolliger and Martindale (2004), Eom, Wen, and Ashill (2006), Joo, Lim, and Kim (2011), and Asoodar, Vaezi, and Izanloo (2016). Comfort with technology, however, has faded as a major driver of student (dis)comfort (Warden et al., 2022), but not disappeared in light of the mass introduction of online teaching during the pandemic (Garris & Fleck 2020). In this study, online social comfort is operationally defined as comfort in discussions and comfort in disagreeing in intellectual discussions to express different points of view.

While technology reliability is frequently mentioned in the literature, it has only occasionally risen to the level of being a major factor in students' perceptions of online quality in recent years in developed countries, e.g., Bolliger and Martindale (2004), versus Asoodar, Vaezi and Izanloo (2016). However, this is not the case in the developing world, where reliability, access, and expense continue to be major challenges (e.g., Agormedah et al., 2020). In this study, technological reliability and fairness are constructed as one factor which we named *system trust* for the accounting and finance students.

Research in online accounting and finance teaching and learning has not been as extensive over time as other business fields (Arbaugh et al., 2009). Relatedly, until the pandemic, the field was noted as needing "academics to become innovators rather than inhibitors" (Watty, McKay, & Ngo, 2016) and more faculty who were qualified and interested in teaching online (McCarthy, Kusaila, & Grasso, 2019). Numerous studies have supported online teaching as an auxiliary aid to teaching face-to-face (Myring, Bolt & Edwards, 2014), in a hybrid mode in finance courses (Wiechowski & Washburn, 2014), and fully online (Halabi et al., 2014; Wong et al., 2019; McCarthy, Kusaila, & Grasso, 2019). One study addressed issues about cheating in online accounting settings (Lento, Sayed, & Bujaki, 2016). Chen, Jones, and Moreland (2013) found that course level was an important factor for students, with face-to-face classes being more valuable for upper division students. Another study found that students who had stronger "generic skills" were significantly happier and more successful in online classes (Herrador-Alcaide, Hernandez-Solis, & Galvan, 2019). However, these studies have not added significant detail to how and why online can be most effective for students, especially for intensely quantitative courses.

When examining aspects of teaching (based on student perceptions or expert opinion), the importance of engagement (teaching presence and instructional design) was investigated in accounting courses by Malan (2020). Wells, DeLange and Fieger (2008) noted the difficulty of getting accounting students to interact with the instructor or each other (social presence and online social comfort). Interestingly, the most studied aspect of online teaching in finance and accounting has been interactive online modality in terms of gamification and apps (Voshaar et al., 2022; Carensy & Moya, 2016; Beatson et al., 2020) and online lectures (Jill, Wang, & Mttia, 2019). Issues related to competence in basic online modality, cognitive presence, and online system trust have not been covered in a substantial way in the accounting and finance education literature.

In line with the above discussion, and because of the relative paucity of literature looking more deeply at issues related to the factors that provide high-quality learning for accounting and finance students from a student perspective, a deeper analysis is warranted. To bridge this gap in the

literature, this research scrutinizes the aforementioned issues, and the following research questions are examined in this study:

Research question 1: What are the primary reasons for accounting and finance students wanting to take online courses?

Research question 2: To what degree do accounting and finance students prefer face-to-face classes as opposed to online courses?

Research question 3: What are accounting and finance students' overall impressions of online education?

Research question 4: What are the most appropriate types of courses in the perspective of accounting and finance students?

Research question 5: From the perspective of accounting and finance students, what are the key factors that contribute to the quality of online courses?

These research questions are especially important to instructors who teach online technical and quantitative courses because of the importance of engaging and holding the attention of accounting and finance students. The lack of face-to-face communication and physical interaction may be challenging for some students but certainly not all. Evidence from this study can assist in curriculum design and instructor training.

DATA AND METHODOLOGY

The sample in this research was drawn from the accounting and finance students in a business school at a large state university. Accounting and finance courses are provided to undergraduate and graduate students at the school through its Bachelor of Arts (BA) in accounting, BA in Finance, and Master of Science in Accounting (MSA), Master of Science in Finance (MSF), and Master of Business Administration (MBA) programs. Both face-to-face and online courses covering the same subjects are available to students.

A beta test survey regarding the online education was conducted in 2017-2018. After feedback from 400 respondents, it was extensively improved and expanded. The revised (current) survey was originally sent out to students within the college across the 2018-19 academic year. Overall, 208 responses were received from students (total number of students with a major of accounting and finance during academic year 2018-2019 was 1256). The survey was designed to capture students' perceptions of quality online classes related to the factors documented in the literature, such as teaching presence, social presence, cognitive presence, basic online modality, instructional design, interactive modality, social interaction, and system trust.

A summary of each factor within the context of this study is provided as follows:

1. Teaching presence: refers to the students' perceptions of the quality of communication and feedback. It requires clear and focused communication and instruction, an encouraging learning environment, and timely and responsive feedback.
2. Social presence: refers to the students' perceptions of the quality of student-to-student interaction and collaboration. It fosters open discussion, teamwork, shared learning, etc.
3. Cognitive presence: refers to the students' perceptions of engagement, stimulation, reflection, exploration, and application of the class and knowledge. It reflects the critical learning perspectives and depth of understanding in class materials.
4. Basic online modality: refers to the application of online teaching tools. It provides and maintains the basic functions of the online learning environment, such as online quizzes, online submission, online grading and the availability of grade or feedback.

5. Instructional design: refers to students' perceptions of the structure of the classes that are provided. It covers many elements in constructing the course, such as syllabus and class navigation, rehearsal and homework, structured feedback and exams, and the application of a variety of methods.
6. Interactive online modality: refers to the application of interactive tools in online classes such as video lectures, teleconferencing, and small group discussions. It evolves over time and requires timely updates.
7. Online social comfort: refers to the students' perceptions of contentment in participating or interacting with their classmates. It includes both positive and negative elements regarding their comfort in agreeing or disagreeing in discussions.
8. System trust: refers to students' perceptions of the reliability of online technology and the fairness in the online learning environment.

In addition to those questions, demographic information was gathered to determine their effect, if any, on students' levels of acceptance of online classes based on age, year in program, major, distance from university, number of online classes taken, high school experience with online classes, and communication preferences.

To explore the factors which affect student perceptions of online education, we conducted a factor analysis under the principal component method with direct oblique rotation. According to Van Wart et al. (2020), numerous studies have been conducted regarding student satisfaction with online education. Along with these studies, a variety of methods have been applied to examine the question from different angles. The taxonomy conducted by Van Wart et al. (2020) showed nine factors that are common constructs in the literature, including seven distinct factors, with one overlapping and one antecedent factor (instructional quality). The factors identified in the literature in that study were teaching presence, cognitive presence, social presence, experience online and/or sense of efficacy, ease of use and/or comfort with technology, instructional quality, instructor training, student characteristics, and technology reliability. The identified factors had substantially different levels of support. Following the method used in the literature, in this study, based on the results of exploratory factor analysis, only items with a loading value greater than 0.50 were kept and used to comprise the key factors affecting the quality of online education and student satisfaction. To ensure the reliability of the composite key factors, the Average Variance Extracted (AVE), the Composite Reliability (CR), and the Cronbach's α are tested. A CR and Cronbach's α values of 0.7 or greater are considered to have passed the test and therefore acceptable.

RESULTS

Table 1 presents the demographic information summarized from the survey. Survey responses indicate that, in terms of age, 52% are 17 to 22 years old, 38% are 23 to 28, 6% are 29 to 34, and 4% are 35 and older. In terms of year in program, 1% are freshmen, less than 1% are sophomores, 44% are juniors, 54% are seniors, and less than 1% are graduate students. Regarding distance from the university, 7% live within 1 mile of the school, 18% live 1 to 5 miles away, 11% live within 6 to 10 miles, 36% live 11 to 25 miles, and 28% live more than 25 miles away from campus. Regarding the number of online classes taken, 6% had never taken any online classes as yet, 15% have only taken one, 51% have taken 2 to 4 courses, 21% have taken 5 to 7, and 6% have taken 8 or more classes. In addition, among those students who have had online experiences, 16% of them have taken one or more online classes in high school. Regarding the ethnicity of students, over half are Latino (58%). Other groups include 17% Asian and Pacific Islanders, 11% white, 4% African American, and other ethnic groups represent 10%. In terms of work status, 22% have a full-time job, and 42 have a part-time job, while 36% are not working.

To answer the first research question, the summarized results are provided in Table 2. Students were asked to rank the reasons for taking the online classes from highest to lowest. Based on the top

Table 1. Demographic information of the participants (n=208)

	Frequency	Percentage		Frequency	Percentage
Age			Number of Hybrid/Online classes have taken		
17 to 22	108	52%	None	13	6%
23 to 28	79	38%	Only one	32	15%
29 to 34	12	6%	2 to 4	107	51%
35 to 34	5	2%	5 to 7	43	21%
40 or older	4	2%	8 to 10	7	3%
			More than 10	6	3%
Year in Program					
Freshman	2	1%	Ethnicity		
Sophomore	1	0%	African American	8	4%
Junior	91	44%	Asian and Pacific Islander	36	17%
Senior	113	54%	Latino	121	58%
Graduate	1	0%	White	22	11%
			Other	21	10%
Distance to University					
Less than 1 mile	14	7%	Work status		
1 to 5 miles	38	18%	Full-time	46	22%
6 to 10 miles	22	11%	Not working	74	36%
11 to 25 miles	75	36%	Part-time	88	42%
More than 25 miles	59	28%			
Had HD/OL classes in high school					
Yes	34	16%			
No	174	84%			

*Percentage eliminating missing values

two categories, 56% of respondents ranked convenience as the top reason, followed by 'helps with challenges in face-to-face scheduling' and 'liking the style of teaching,' which are ranked 22% and 17%, respectively. The reasons for not taking online classes, based only on those who had not taken online classes, included 16 students who noted online classes were not available and 13 who felt that they learn better in a classroom.

The second research question was to what degree do accounting and finance prefer face-to-face classes as opposed to online courses? In other words, disregarding flexibility and convenience, what was the perceived preference? One half of the students preferred or strongly preferred face-to-face courses in terms of enjoyment, but only 15% disagreed or strongly disagreed. Students were believed or strongly believed they were learning more in face-to-face courses 55% of the time, and only 11%disagree or strongly disagreed. See Table 3 for the breakdown.

The overall perceptions of online teaching and learning are reported in Table 4. These can be considered dependent variables. Despite the preferences for face-to-face classes for enjoyment and perceived learning achievement, 76% of the sample of students have overall a good to very good

Table 2. Reasons for taking or not taking online classes for accounting and finance students

Driving Reasons for Online Learning	Totals	Percent
Q15 - I take hybrid/online classes because (check all that apply):	298	100%
It's convenient (e.g., distance, flexibility)	167	56
I like the style of teaching	50	17
It helps with challenges in face-to-face scheduling	65	22
Other, please specify:	16	5
Q26 - Reasons for not taking hybrid/online classes	33	100%
Not available	16	48
I learn better in a classroom	13	39
Other	4	12
Not well taught	0	0
They cost more	0	0

Table 3. Face-to-face perceptions of online teaching and learning by accounting and finance students

Face-to-Face Preference	Top two categories	Neutral	Bottom two categories
16.7. I enjoy face-to-face classes more.	103	73	32
16.8. I learn more in face-to-face classes.	115	70	23

impression of online/hybrid learning, while 69% of the students say they enjoy online learning. Moreover, 76% say they felt comfortable with online learning technologies. 69% said that instructors of online/hybrid classes were generally responsive. On the other hand, those in the bottom two categories were relatively small in comparison to the face-to-face preferences, with only 6% to 8% being highly negative.

Table 5 reports the results of student perceptions of the types of classes which are most appropriate for online classes. Again, based on the top two categories, 85% picked online for general education classes, and 71% selected online introductory level classes. 62% of students felt that online courses with lots of reading and writing were appropriate, while 49% of the students chose a “no difference” response. 49% are favorably inclined toward taking online classes in their major concentration, and 45% were favorably included regarding taking highly technical courses online. These findings are somewhat aligned with Chen, Jones, and Moreland (2013) who found that introductory courses were preferred by students in the online format rather than upper division. Interestingly, note that the number of students who find an online format inappropriate (the bottom two categories) is relatively

Table 4. Overall perceptions of online teaching and learning by accounting and finance students

Online Acceptance	Top two categories	Neutral	Bottom two categories
16.1. My overall impression of online/hybrid learning is very good.	159	37	12
16.4. I am comfortable with online learning technologies.	158	37	13
16.5. I enjoy online learning. [as an outcome]	143	48	17
16.9. The instructors of online/hybrid classes are generally responsive.	143	52	13

small, ranging from 4% for GE courses to 26% of the respondents for courses in which students are exposed to highly technical materials. And only 24% of the respondents found major concentration courses inappropriate in an online format.

To answer our fifth research question, the summarized factor analysis results are provided in Table 6 to Table 9. From the summarized results it is seen that, in general, students enjoyed taking online courses. Based on the analysis, six separate components were successfully identified. Teaching presence, social presence, cognitive presence, basic online modality, instructional design, and interactive online modality were pinpointed as the key factors by students.

Table 6 and Table 7 provide illustrations of key results in this study. Table 6 shows eight factors which were identified with an Eigen value greater than one, based on the exploratory factor analysis. The construct factors are basic online modality, instructional design, teaching presence, cognitive presence, online social comfort, interactive online modality, trust of system, and social presence.

The first factor, basic online modality, is composed of elements such as online grading, online submission, and online gradebook. The second factor, instructional design, includes instructor's enthusiasm, sufficient rehearsal of material and skills, instructor's feedback, and class navigation. The third factor, teaching presence, covers course delivery elements such as whether instructors clearly communicated important due dates/time frames for learning activities, provided clear instructions on how to participate in course learning activities, and helped keep students on task in ways that helped them learn efficiently. Further, teaching presence also covered clearly communicating important course goals, providing feedback that helped students understand their strengths and weaknesses, focusing discussion on relevant issues, and encouraging students to explore new concepts. The fourth factor, cognitive presence, encompasses intellectual stimulation elements such as if online learning activities helped students construct explanations/solutions, if online courses provided opportunities for meaningful reflection on course content, or whether activities in online classes stimulated students' curiosity. Additionally, cognitive presence identifies if students could apply the knowledge created in online courses to their work or other non-class related activities, and if students could utilize a variety of information sources to explore problems. The fifth factor contains student-to-student elements, such as if students felt comfortable participating in online course discussions and if students felt comfortable disagreeing with other classmates in online courses while still maintaining a sense of trust. The sixth factor, interactive online modality, covers technology used to deliver the online course, including the application of Zoom, other video-conference methods, and video lectures. System trust, the seventh factor measured, entails questioning the reliability and fairness of online technology. The eighth and last factor, social presence, is composed of student-to-student elements, and questions whether students were able to form distinct impressions of some classmates in online courses, if getting to know other classmates gave students a sense of belonging in online courses, and whether they experienced interaction with other students. Social presence also asked if online or web-based communication was an excellent medium for social interaction, whether students experienced a sense of community in the class, if online discussions helped students develop a sense of collaboration (including student goals), and whether small group discussions were well implemented.

Table 5. Accounting and finance student perceptions about which types of classes are most appropriate for an online format

The following material is most applicable for online learning:	Top two categories	Neutral	Bottom two categories
General education courses	176	23	9
Introductory courses	148	43	17
Courses with lots of reading and writing	128	49	31
It makes no difference	101	68	39
Major concentration courses	101	57	50
Highly technical courses	93	60	55

Table 6. Importance of eight factors affecting learning as perceived by accounting and finance students displayed by mean average

Factor Items; N=208	A and F		
+ = top two categories; 0 = neutral categories; - = bottom two categories	+	0	-
Basic Online Modality: Course Delivery Factors/ Online Course Design (3)			
36.1 Online grade book.	184	22	2
36.2. Allowing students to make online submissions.	187	20	1
36.3 Online grading of assignments by instructors.	178	26	4
Instructional Design: Course Delivery Factors/ Online Course Design (4)			
32.1 Navigation (e.g., being able to find what you want).	180	24	3
32.7. Instructor having enthusiasm.	159	35	13
32.8. Sufficient rehearsal of material, skills to be learned, etc.	171	27	9
32.9. Instructor providing feedback.	177	23	7
Teaching Presence: Course Delivery Factors/ Online Course Design (8)			
37.1. Online instructors clearly communicate important course goals.	169	32	6
37.2. Online instructors provide clear instructions on how to participate in course learning activities.	162	39	6
37.3. Online instructors clearly communicate important due dates/time frames for learning activities.	166	32	8
37.4. Online instructors help keep students on task in a way that helps them learn efficiently.	147	48	12
37.5. Online instructors help keep students on task in a way that helps them learn efficiently.	134	57	15
37.6. Online instructors encourage students to explore new concepts.	149	44	11
37.7. Online instructors help to focus discussion on relevant issues.	149	43	14
37.8. Online instructors provide feedback that helps students understand their strengths and weaknesses relative to the course's goals and objectives.	151	44	11
Cognitive Presence: Intellectual Stimulation Factor (5)			
47.2. Online courses have activities that stimulate my curiosity.	121	72	14
47.3. I can utilize a variety of information sources to explore problems.	141	53	12
47.5. Online learning activities help me construct explanations/solutions.	130	60	15
47.6. Online courses provide opportunities for meaningful reflection on course content.	125	62	20
47.7. I can apply the knowledge created in online courses to my work or other non-class related activities.	126	61	18
Online Social Comfort: Student to Student Factor (2)			
46.4. I feel comfortable participating in online course discussions.	131	59	17
46.5. I feel comfortable disagreeing with other classmates in online courses while still maintaining a sense of trust.	119	62	26
Interactive Online Modality: Course Delivery Factors/ Online Course Design (2)			
36.4. Video lectures.	135	50	23
36.5. Zoom or other video-conference methods.	107	59	42

continued on following page

Table 6. Continued

Factor Items; N=208		A and F	
+ = top two categories; 0 = neutral categories; - = bottom two categories	+	0	-
Trust of System: Trust Factor (2)			
20. Fairness.	98	76	33
40.1. The reliability of online technology itself (e.g., outages, glitches, etc.) is a concern.	124	56	60
Social Presence: Student to Student Factor (8)			
32.3. Interaction with other students.	104	69	34
32.4. Including student goals.	127	59	21
32.6. A sense of community in the class [includes instructor].	117	57	33
36.6. Small group discussions (chat rooms).	106	60	42
46.1. Getting to know other classmates gives me a sense of belonging in online courses [does <i>not</i> include the instructor].	71	78	58
46.2. I am able to form distinct impressions of some classmates in online courses [does <i>not</i> include the instructor].	68	80	58
46.3. Online or web-based communication is an excellent medium for social interaction.	88	76	42
46.6. Online discussions help me develop a sense of collaboration.	113	64	29

Table 7 provides the results from a factor analysis based on correlations. The eight factors together explain 64.45% of the total variance and are ranked in sequence. Only loadings with a number greater than 0.50 are reported.

Table 8 reports the results of reliability tests on the factors identified above. To ensure the reliability of the composite variables, the Average Variance Extracted (AVE), the Composite Reliability (CR), and the Cronbach's α are tested. The general requirements for the factors to be considered reliable have CR and Cronbach's α values greater than 0.7. Six out of eight factors meet the minimal requirement, while online social comfort and system trust failed in one and two tests, respectively. As a result, from the reliability tests, the final factors which can be considered as the key factors contributing to quality online education and affecting their satisfaction from accounting and finance students' perspectives are teaching presence, social presence, cognitive presence, online modality, instructional design, and interactive modality.

Overall, the result of factor analysis shows that the factors of teaching presence (e.g., customized feedback), social or student-to-student presence (e.g. open discussion.), cognitive presence (e.g., engagement and stimulation), basic online modality (e.g., online submission and grading), instructional design (e.g., syllabus and navigation), online social comfort (ease at communicating online), and interactive online modality (e.g., videoconferencing) are key to student perceptions regarding the quality of online education.

Discussion of Factor Analysis Results in the Context of Literature

The descriptive findings yield results that help explain different positions often asserted that seem contradictory: students prefer face-to-face classes versus students genuinely like online classes even disregarding their strong interest in convenience and flexibility. This study would indicate that both positions are true. Students do like the convenience, flexibility, and scheduling convenience of online classes a lot. While about half of the students enjoy face-to-face classes more, about half of the students were neutral or simply disagreed. And despite preferences for face-to-face modes in general, the impressions of online courses were overwhelmingly positive. In terms of which classes

Table 7. Factor analysis with rotated factor loading – factors contribute to the quality of online education

Survey	Factor 1 Teaching Presence	Factor 2 Social Presence	Factor 3 Cognitive Presence	Factor 4 Online Modality	Factor 5 Instructional Design	Factor 6 Interactive Modality	Factor 7 Social Interaction	Factor 8 System Trust
37.3 Online instructors of due dates/time frames	0.8222							
37.2 Online instructors of participation	0.7884							
37.4 Online instructors helping keep students on task	0.7674							
37.1 Online instructors of course goals	0.7528							
37.8 Online instructors of feedback in time	0.7525							
37.7 Online instructors of feedback outlining strength and weakness	0.7371							
37.6 Online instructors regarding discussion	0.7122							
37.5 Online instructors of exploring new concepts	0.6520							
46.2 Distinct impressions of some classmates		0.7336						
46.1 Belonging to online courses		0.7257						
32.3 Interaction with each other		0.7062						
46.3 Medium for social interaction		0.7059						
32.6 A sense of community		0.6590						
46.6 Collaboration		0.6538						
32.4 Including student goals		0.6402						
36.6 Small group discussions		0.5534						
47.5 Construct explanations/solutions			0.7528					
47.6 Meaningful reflection			0.7220					
47.2 Stimulate curiosity			0.6461					
47.7 Apply knowledge to non-class related activities			0.6458					
47.3 Resources for exploring problem			0.5929					
36.3 Online grading				0.7974				
36.2 Online submissions				0.7890				
36.1 Online grade book				0.6729				
32.7 Instructor having enthusiasm					0.6774			
32.8 Sufficient rehearsal of material, skills to be learned, etc.					0.6577			
32.9 Instructor providing feedback					0.6566			
32.1 Navigation (e.g., being able to find what you want)					0.5443			
36.5 Video lectures						0.8617		
36.4 Zoom or other video-conference methods						0.6054		
46.4 Comfortable to participate							0.7331	
46.5 Comfortable to disagree							0.6817	
40.1 The reliability of online technology								0.5530
20.1 Fairness								0.5395

Notes: This table reports the results from Factor Analysis on Correlations with eight factors. Eight factors together explain 64.45% of the total variance. Only loadings with a number greater than 0.50 are reported.

Table 8. Factor reliability tests

Factors Contributing to the Quality of Online Education				
	Std Dev	AVE	CR	Cronbach's α
Teaching Presence	6.53	0.56	0.91	0.945
Social Presence	7.12	0.45	0.87	0.904
Cognitive Presence	4.20	0.45	0.81	0.908
Online Modality	1.98	0.57	0.80	0.886
Instructional Design	2.85	0.40	0.73	0.848
Interactive Modality	2.23	0.55	0.71	0.825
Online Social Comfort	2.05	0.50	0.67	0.875
System Trust	1.92	0.30	0.46	0.544

Notes: AVE=average variance extracted; CR=Composite reliability.

were most applicable for online modes, unlike much of the literature, this study found that accounting and finance students were not strongly averse to taking online classes in their majors.

One of the fundamental purposes of this study was to integrate a variety of constructs regarding students' perceptions of quality into a single survey in accounting and finance in order to compare them with the literature.

As noted above, we wanted to see if the interrelated concepts of instructional design (preliminary design of a course), basic online teaching competence and more advanced interactive online modality could be discerned by students and would reach significance. These factors were ranked, respectively, as numbers one, two, and five in importance to accounting and finance students. However, online social comfort (e.g., videoconferencing) did not meet the Cronbach reliability test, registering just shy of the .7 threshold at .67. Not surprisingly, students find the basic technological functionality of the course to be most important. They want to know they can effortlessly submit assignments, get comments on course work back online, and easily access their grades. Next most important is having a class that has been designed well and executed as designed – in other words, is the navigation clear, is assignment feedback built into the course, and do they have sufficient rehearsal opportunities. While online interactive modality is only represented by two items here and comes in as fifth most important to students, qualitative comments suggest that while quite important, it is not as critical. See Table 8.

Accounting and finance students reported teaching presence as the third most influential factor related to online teaching quality and student satisfaction, placing it in the top tier of factors. Teaching presence addresses whether instructors clearly identify course goals, if instructions and communications are clear or not, and if the instructor provides customized feedback and support during the course.

In this study, cognitive presence ranked fourth most influential regarding online teaching quality and student satisfaction, placing it in the second tier of factors. Cognitive presence here included insights into data sources in the field, applicability of what is being taught to students' career paths, thoughtful problem solving, and stimulating curiosity.

In this study, we showed that social presence is ranked last by accounting and finance students and is therefore in the lowest tier. Nonetheless, the factor passed the reliability test. While an inclusion of student goals, a sense of community, and good online discussions are relatively important to students, they are more additive than critical. For accounting and finance students, the instructor-led components are what are most important.

We found *online social comfort* (i.e., comfort in discussions and being able to disagree amicably) to be identified by accounting and finance students as a distinct factor contributing to online teaching

quality and student satisfaction. It ranked in fifth place, but just missed one of the reliability thresholds. The reason for this may be that online social comfort is more important in the decision to take or not take a class and may be more a personality characteristic than other factors having to do with the design and conduct of the class.

System trust ranks in seventh place, placing it in the bottom tier; it does not pass either of the reliability factor tests. It is hypothesized that while students think system trust is important, they notice it more in its absence than its presence, essentially acting as a ‘hygiene’ factor. Table 9 summarizes the findings.

CONCLUSION AND LIMITATIONS

All over the world, from the UK to Australia to the USA nowadays, students’ perspective regarding the quality of education has gained its role back as a critique measure of successful education practice. It has not only caught the attention of the administration, such as college deans in the study conducted by Christie (2017), it also being realized and emphasized by many scholars and instructors on the frontline. Studies addressing this issue are urgently needed, as the focus on students’ perspective of quality online education becomes more prominent. To advance the literature, the purpose of this study was to investigate key elements which influence accounting and finance students’ perceptions of online education quality and their satisfaction. We surveyed undergraduate students majoring in accounting and finance to identify what those preferences are in a sample case study. Convenience and flexibility are still the major reasons for students taking online courses. An online format was identified as more appropriate in GE and introductory courses. However, the analysis showed that more than 74% of students majoring in accounting and finance found an online format for major concentration classes with highly technical materials acceptable, which was an unexpected outcome. We also carried out an exploratory factor analysis to reveal the factors driving students’ perceptions of online education quality and their satisfaction. In general, students enjoyed taking online courses. The scope of evidence revealed in this study suggests that the factors of teaching presence, social presence, cognitive presence, basic online modality, instructional design, and interactive online

Table 9. Comparison of factor identification and support from the literature and this study based on student perceptions of online teaching quality

Concepts found in the literature	Support of concepts found in the literature	Factors found in this study	Factor importance*; tier by cluster	Factor reliability based on CR and Cronbach’s α
Instructional quality; instructional training	Strong	Basic online modality	183.0; top	Both
Instructional quality; instructional training	Strong	Instructional design	171.8; top	Both
Teaching presence	Strong	Teaching presence	153.4; top	Both
Cognitive presence	Strong	Cognitive presence	128.6; middle	Both
Ease-of-use and comfort-with-technology	Moderate	Online social comfort	125.0; middle	Both
Instructional quality; instructional training	Strong	Interactive online modality	121.0; middle	Cronbach’s α only
Technology reliability	Weak	System trust	111.0; bottom	Neither
Social presence	Moderate	Social presence	99.4; bottom	Both

*Based on the top two categories and an average of all the subfactors.

modality are the primary factors contributing to the quality of online education and satisfaction in the perspective of accounting and finance students. The factors identified in this study fit well with the existing literature and matched factors documented in prior studies. The descriptive data and explorative factor analysis depict a better window through which to view and understand accounting and finance students' expectations when taking online classes. The study expands the accounting and finance education literature, covering effective teaching and learning, to the area of an online environment, and contributes to educators designing and implementing their online courses. In addition, this study is a successful attempt to clearly address the literature gap, as Arbaugh (2013) pointed out that the quality of online education and students' satisfaction need to be examined within their discipline and that students' preferences should not be assumed to be similar across disciplines.

Data limitations restricted the opportunity to fully explore many of the supporting explanations, such as student's personality and talents. However, the study developed under the theory provides guidance for future research regarding this topic. As mentioned earlier, the quality of online education and student satisfaction are critical topics that need to be more thoroughly investigated along with this growing trend in our education system. The nature of evolving technology and the changes in acceptance and expectations of technology from students' perspectives suggest a future need for conducting a contemporary and chronological study to fully reveal the facts on this issue.

Teaching and Educational Notes

In this study, we examined the factors that lead to quality online education and student satisfaction from the accounting and finance students' perspectives. Based on the factor analysis, teaching presence, social presence, cognitive presence, basic online modality, instructional design, and interactive online modality were pinpointed as the key factors by students. We expect the study could provide a reference for accounting and finance educators when designing and implementing their online courses to improve teaching effectiveness.

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