



# A review of adoption of online learning and new directions based on self-reported assessment

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Abstract

The academic community has acknowledged the revolution brought about by online courses at the university level. This study reported on the use of online accounting courses as a tool for creating an online learning environment. Responses from undergraduate accounting students (including both day students and evening students) provided the data to understand the self-reported course assessment (including input and participation) of students. Consistent with the findings of earlier studies, this study revealed that the majority of students show a positive attitude toward using online learning strategies. However, this study differed from earlier studies in its finding that students were reluctant to participate in online discussion forums in general. The study discussed the implications of such unwillingness and a few other factors for faculty contemplating the adoption of online courses.

**Keywords:** Online courses, Accounting, Effectiveness of online learning, Self-reported assessment.

## INTRODUCTION

The academic community has acknowledged the revolutionary impact of online courses at the university level. Rapid acceptance of, and changes in, information technology are transforming the way educators teach and students learn. Rosman (2008) states that e-learning takes learning away from the classroom or campus, so e-learning is an alternative or is complementary to classroom learning. The ability to deliver traditional courses through the Internet has radically changed the landscape of university campuses. Mobile phones and handheld computers enable easy access of information (Kutluk and Gülmez, 2014).

According to the 2010 Sloan Survey of online learning, approximately 30% of university and college students take at least one course online (Allen and Seaman,

2010). Allen and Seaman (2010) reference one survey conducted by the Babson Survey Research Groups, which reported that online enrolments have continued to grow at rates far in excess of the total higher education student population in the United States 2009—most recent data indicates no signs of slowing. More than one in four higher education students now take at least one course online. Rich and Dereshiwsky's report in 2011 indicated that the ability to deliver traditional courses through the Internet has radically changed the landscape of American college campuses.

Learning in an online environment has become increasingly interesting, because various online tools like smart phones, personal digital assistances (PDAs), and portable computers incorporate computing capabilities

(which allow the user to communicate with other people, as well as create documents, read data files, and access the Internet) in addition to communication functions (Hussin et al., 2012, p. 277). Other advantages an online environment offer include life-long learning and 'just in time' learning (Gulsecen et al., 2010, p. 796) which delivers training to workers when and where they need it instead of sitting through hours of traditional classroom training.

As the accounting departments across colleges or universities in Taiwan decide to expand their online course offerings, faculties are interested in the effectiveness of learning outcomes when course are delivered through the Internet. Currently, there are faculties who believe only face-to-face on-campus experiences can provide the proper learning environment for undergraduate accounting students. Traditional educators fear that the lack of face-to-face interaction will impair student learning (Stewart, Bachman and Johnson, 2010). Students' input and participation is important in the evaluation of online courses, as this input is related to the quality of online programs and student performance (Kuo et al., 2014). In fact, the success of online courses depends on the input and participation of learners (Chen and Mo, 2014). The purpose of this study is to investigate the self-reported course assessment (including input and participation) of university students in accounting courses, and to realize the effectiveness of online learning.

### **Prior research using online accounting courses**

Does taking an online course lower a student's chances for success as compared to the same student taking the same course in a face-to-face format? One survey, published by the U.S. Department of Education, which included more than 1,000 empirical studies of online learning, concluded that, 'on average, students in online learning conditions performed better than those receiving face-to-face instruction' (Department of Education, 2009). Chen and Mo (2014) indicate that computer hypermedia and networking technology could be used to create effective simulations of situations that cannot otherwise be experienced in a traditional classroom. However, Jaggars (2014) argue that, among other limitations, the report does not pertain to fully online, semester-length college courses. Indeed, as compared to the traditional face-to-face environment, there is some evidence to show that not all learners do as well in fully online courses. Furthermore, not all studies support distance learning as equal to on-campus courses (Rich and Dereshiwsky, 2011). For example, Ferguson and Tryjankowski (Ferguson 2009) examine the cognition, learning, and assessment of performance of master's level students in an online course and compared them with the performance of students in a face-to-face

classroom setting of the same course. Students in the face-to-face class scored significantly higher on two out of the three measures.

While administrators are usually supportive of expanding online courses, many college-level professors remain sceptical, preferring to believe that only traditional delivery of classes can create effective learning environments (Rich and Dereshiwsky, 2011). While there is currently a proliferation of accounting courses in proprietary online programs, the Wall Street Journal reported in 2010 that three of the largest for-profit universities offering accounting courses online, the University of Phoenix, DeVry University, and Kaplan University, now have a total of almost 700,000 students enrolled in their combined programs. Larson-Birney's (2000) report that related to introductory accounting courses delivered entirely over the Internet reveals that students in the early years of online course delivery were initially confused about how to begin the course, but as the course progressed, students found Web-based courses easier to use. The students' performance in final exams was very similar, as compared to the performance of students in traditional face-to-face classrooms. However, the withdrawal rate was almost three times higher in the Internet-based class.

In another early study, Gagne (2001) found the performance of students in an online distance course was similar to the performance of students in the on-campus course for an introductory accounting graduate class. The authors also reviewed the results of students' evaluations and found similar results for both online and face-to-face learners. However, online learners were significantly less satisfied with instructor availability than their face-to-face student counterparts.

Huh and his colleagues (Huh, 2008) compared the performance of students in online and offline accounting courses from the fall of 2003 through the spring of 2005 to see if there were any differences in the performance between accounting students who were on-line learners and accounting students who were on campus. Their results suggested that there were no significant differences in testing performances such as total scores, multiple scores, and non-multiple choice scores between online learners and offline learners. In another study, Huh (2010) and his colleagues examined the effects of student characteristics on performances as measured by test scores. Their results indicated that while there is no significant difference in student performances, some characteristics or variables have differential effects on performances for online and offline learners. Specifically, the effects of grade point average (GPA) and gender on performances were significantly higher for offline students than for online students. Even as late as 2009, accounting instructors were integrating computer-based instruction into their courses. Watters and Robertson (2009) looked at student perceptions to assess the effectiveness of including an online component as a part

of traditional accounting courses. More specifically, the authors reported the results of a survey of introductory and advanced accounting students where such a component was introduced. Overall, approximately 75% of students indicated that the online delivery of the courses was as effective, or more effective, than a traditional course.

Kohlmeyer, Seese, and Sincich (2011) surveyed US professionals practicing in public accounting to determine their perceptions of online accounting degrees compared to traditional accounting degrees. Some of the results reveal that professionals preferred graduates of online degree programs to also be accredited by the Association to Advance Collegiate Schools of Business (AACSB), more so than graduates of traditional classroom programs.

Prinsloo, Müller, and Du Plessis (2010) investigated the retention of first-year accounting students at a South African university that primarily uses online distance learning with students who are geographically. The results of the statistical analysis showed that those receiving online courses experienced an improvement in their test scores and a higher retention rate than those in traditional classroom-based learning.

## THE RESEARCH STUDY

The authors were interested in understanding the completion rates of online courses of university students taking an introductory accounting. One of the authors was allowed to develop an online introductory accounting course. It was delivered for the first time in Fall 2014, at one university in New Taipei City. The course reviewed the introductory chapters in accounting texts. One instructor taught the introductory accounting course online to both day and evening students. Table 1 summarizes the descriptive statistics (i.e. totals and percentages) for the respondents.

The data collection method was non-random sampling. A survey was prepared and administered to the students during their accounting lessons. Approximately 485 students were enrolled in the course. A total of 412 surveys were obtained, with a rate of return of 85%. The survey was organized by the authors of this paper, and was informed by previous studies (Marriott, 2009; Chaparro-Peláez et al., 2013; Amer, Bain and Wilburn, 2010) related to accounting education online. The survey included two sections: The first section consisted of five demographic questions. The second section included 12 Likert-type statements to investigate the completion of online learning courses with the scale interval of 1: Strongly Disagree to 5: Strongly Agree. The Cronbach Alpha level of reliability analysis for the second section was 78%.

The frequencies of demographic questions, as well as means and standard deviations for statements about the

self-reported assessment of online learning are shown in the following tables. The T test, Mann-Whitney test, and Kruskal-Wallis test are used to determine whether there were significant differences between students' self-reported assessment of online learning in terms of sex, class, job, average time spent on the online course on a daily basis, and the main tool of accessing the online course.

## FINDINGS

The highest or the most remarkable percentage of demographic questions are included in the summary of findings. The means and standard deviations for statements about the self-reported assessment of online learning, T test, Mann-Whitney test, and Kruskal-Wallis test are shown in each of the tables.

According to Table 1, about half students attended the day program (50.49%), most of the students were female (75.24%), and had part-time jobs (24.76%) at the time of the study. 34.47% spent 0.5-1 hour on the online course every day, and 63.11% used smart phones as the main tool of accessing the online course.

Table 2 shows that students mostly agreed with the statements of 'Overall, I am able to complete the learning activities required for online courses' and 'I usually make comments on the online discussion forum'. Students mostly disagreed with the statement of 'I usually participate in the online discussion forum'.

Table 3 shows that there are differences between 'Class' and the statements of 'I usually complete reading course materials online', and 'I usually ask questions to the teacher online'. Students who enrolled in the day program were more likely to agree with the statements of 'I usually complete reading course materials online'. Students who enrolled in the evening program were more likely to agree with the statement of 'I usually ask questions to the teacher online'.

Table 4 shows that there are differences between 'Sex' and the statements of 'I usually complete reading course materials online', and 'Overall, I am able to complete the learning activities required for online courses'. Male students were more likely to agree with the above-mentioned two statements.

Table 5 shows that there is a difference between 'the main tool of accessing the online course' and the statement of 'I usually participate in the online discussion forum'. When subgroups were considered, students (63%) using 'Smart phones' as the main tool of accessing the online course were found to be most likely to agree with the above statement.

Table 6 shows that there are differences between 'average time spent on a daily basis' and the statements of 'I usually complete reading course materials online', 'I usually ask questions to the teacher online', 'I usually complete the online course requirements on time', and

**Table 1.** Descriptive statistics (i.e. percentages of frequencies) for demographic questions

Item	Variable (percentage)
Sex	Female (75.24); Male (24.76)
Class	Day (50.49); Evening (49.51)
Job	Full-time (15.05); Part-time (24.76)
Average time spent on the online course on a daily basis	<0.5 hour (20.87); 0.5-1 hr (34.47); 1-1.5 hrs (18.45); >1.5 hrs (26.21)
The main tool of accessing the online course	Smart phone (63.11); Desktop (14.56); Tablet PC (22.33)

**Table 2.** Means and standard deviations about students' self-reported assessment of online courses

STATEMENTS	Mean	SD
I usually complete reading course materials online.	3.84	1.18
I usually participate in the online discussion forum.	3.51	1.32
I usually make comments on the online discussion forum.	4.15	0.86
I usually ask questions to the teacher online.	3.80	1.15
I usually complete the online course requirements on time.	3.71	1.31
Overall, I am able to complete the learning activities required for online courses.	4.16	0.88

**Table 3.** Mann-Whitney test about students' self-reported assessment of online courses in terms of 'Class'

Statement	Group	n	Mean Rank	U	Z	P
I usually complete reading course materials online.	day	208	217.99	18826.00	-2.03	0.04*
	evening	204	194.78			
I usually participate in the online discussion forum.	day	208	203.95	20686.00	-0.45	0.65
	evening	204	209.10			
I usually make comments on the online discussion forum.	day	208	206.09	21130.00	-0.07	0.94
	evening	204	206.92			
I usually ask questions to the teacher online.	day	208	192.38	18280.00	-2.53	0.01*
	evening	204	220.89			
I usually complete the online course requirements on time.	day	208	199.54	19768.00	-1.25	0.21
	evening	204	213.60			
Overall, I am able to complete the learning activities required for online courses.	day	208	201.78	20234.00	-0.84	0.40
	evening	204	211.31			

\*P&lt;0.05

'Overall, I am able to complete the learning activities required for the online course'. When subgroups were considered, students spent 1-1.5 hours daily on the online course were most likely to agree with the above-mentioned four statements.

As long as smart phones were used, e-learning strategy was seen as a convenient learning strategy.

## CONCLUSIONS AND RECOMMENDATIONS

In Wiliam's study (2009), the majority of students had showed a positive attitude toward using online learning strategies. In Kissinger's study(2011), students reported that they competently used e-books and expressed feelings and perceptions of high self-efficacy. Mathur's study (2011) showed that students intended to use

**Table 4.** Mann-Whitney test about students' self-reported assessment of online courses in terms of 'Sex'

Statement	Group	n	Mean Rank	U	Z	P
I usually complete reading course materials online.	male	102	230.70	13342.00	2.43	0.01*
	female	310	198.54			
I usually participate in the online discussion forum.	male	102	190.68	14196.00	1.59	0.11
	female	310	211.71			
I usually make comments on the online discussion forum.	male	102	202.70	15422.00	0.39	0.70
	female	310	207.75			
I usually ask questions to the teacher online.	male	102	195.03	14640.00	1.17	0.24
	female	310	210.27			
I usually complete the online course requirements on time.	male	102	204.68	15624.00	0.19	0.85
	female	310	207.10			
Overall, I am able to complete the learning activities required for online courses.	male	102	230.09	13404.00	2.39	0.02*
	female	310	198.74			

\*P&lt;0.05

**Table 5.** Kruskal-Wallis test about students' self-reported assessment of online courses in terms of 'the main tool of accessing the online course'

Statement	Group	n	Mean Rank	$\chi^2$	df	P
I usually complete reading course materials online.	Smartphone	260	210.62	1.55	2	0.46
	desktop	60	208.90			
	Tablet PC	92	193.30			
I usually participate in the online discussion forum.	Smartphone	260	215.50	7.96	2	0.02*
	desktop	60	168.80			
	Tablet PC	92	205.65			
I usually make comments on the online discussion forum.	Smartphone	260	207.58	0.34	2	0.84
	desktop	60	198.60			
	Tablet PC	92	208.61			
I usually ask questions to the teacher online.	Smartphone	260	201.35	2.94	2	0.23
	desktop	60	201.20			
	Tablet PC	92	224.52			
I usually complete the online course requirements on time.	Smartphone	260	201.35	0.14	2	0.93
	desktop	60	201.20			
	Tablet PC	92	224.52			
Overall, I am able to complete the learning activities required for online courses.	Smartphone	260	201.35	2.34	2	0.31
	desktop	60	201.20			
	Tablet PC	92	224.52			

\*P&lt;0.05

mobile applications if they perceived online learning was convenient and easy to use. Students believed that reliable service and easy-to-navigate content were important for online learning to be effective. In Derakhshan's study (2009), content was a feature in which students showed high interest. In Akour's study

(2009), quality of service influenced students' acceptance of online learning. A study by Ozcelik and Acarturk (2011) found that mobile phones have the potential to enhance learning by facilitating access to online information sources. The results of this study show that students who consistently have access to smart phones tend to believe

**Table 6.** Kruskal-Wallis test about students' self-reported assessment of online courses in terms of 'average time spent on a daily basis'

Statement	Group	n	Mean Rank	$\chi^2$	df	P
I usually complete reading course materials online.	< 0.5 hour	98	221.26	15.18	3	0.00*
	0.5-1 hr	90	196.81			
	1-2 hrs	148	223.81			
	>2 hr2	76	165.24			
I usually participate in the online discussion forum.	< 0.5 hour	98	210.85	0.74	3	0.86
	0.5-1 hr	90	207.83			
	1-2 hrs	148	200.18			
	>2 hr2	76	211.63			
I usually make comments on the online discussion forum.	< 0.5 hour	98	210.38	2.67	3	0.45
	0.5-1 hr	90	217.92			
	1-1.5 hrs >1.5 hrs	148	194.86			
	hrs	76	210.63			
I usually ask questions to the teacher online.	< 0.5 hour	98	188.52	11.81	3	0.01*
	0.5-1 hr	90	182.50			
	1-1.5 hrs >1.5 hrs	148	228.34			
	hrs	76	221.78			
I usually complete the online course requirements on time.	< 0.5 hour	98	182.11	8.82	3	0.03*
	0.5-1 hr	90	217.69			
	1-1.5 hrs >1.5 hrs	148	224.19			
	hrs	76	195.21			
Overall, I am able to complete the learning activities required for the online course.	< 0.5 hour	98	177.89	12.94	3	0.00*
	0.5-1 hr	90	204.63			
	1-1.5 hrs >1.5 hrs	148	240.79			
	hrs	76	208.97			

\*P<0.05

that online learning is a convenient way to study. Overall, the results of this study are consistent with above-mentioned studies, with the exception that students appear unwilling to actively participate in online discussion forums. Limited interaction may in turn decrease students' course satisfaction and affect their performance (Noel-levitz, 2011). Learners with high levels of interaction with the teacher and other learners are more engaged in online learning. This has implications for faculty contemplating the adoption of online courses.

One major obstacle with online course delivery is the limited ability to administer exams to students in an online environment. Online students can be located anywhere in the world, and often take online classes because they are unable to come to a brick-and-mortar campus. As a

result, online courses tend to utilize more multiple-choice tests. As online accounting courses expanded across universities, one issue that requires the attention of researchers is the mode of testing. On the other hand, student assessment of online courses may be affected by the availability and quality of technical support, as well as other technical issues that online learners experience.

The current economic crisis has only served to increase the demand for online courses and degree programs; consequently, universities presidents recognize student preferences for online courses (Allen and Seaman, 2010). Academic leaders, in response to online enrolment increases, include online education options as a critical component of their universities' strategic plans and report that these methods of course delivery will be necessary for sustained growth.

## LIMITATIONS

The study was limited in that it was performed within one university, exclusively in the field of accounting. For more comprehensive results, it is suggested that student readiness and preparedness regarding online learning should be assessed in various universities, and using a variety of different courses.

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