ปัจจัยที่มีผลต่อประสิทธิภาพการเรียนรู้ของนักศึกษาบัญชีจากการเรียนการสอนทางออนไลน์ช่วงการระบาดของ COVID-19

Determinants of Accounting Students' Academic Performance in Online Teaching and Learning Platforms During the COVID-19 Pandemic

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Abstract

      This research aims to examine the relationship between predictor variables and measured variables. Predictor Variables consist of characteristics of an online classroom, the instructor's enthusiasm, classroom management, interaction with the students, helpfulness, and fairness, including students' learning performance, habits of self-study, and academic endurance. Meanwhile, measured variable refers to students' academic performance in online accounting courses.

      An online questionnaire was used as the tool for collecting data from 370 accounting students of a private university from January to May 2020 (during the COVID-19 pandemic). The collected data was analyzed using multiple regression analysis. The study reveals that the characteristics of the online classroom, the instructor's classroom management, fairness, students' learning performance,

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and academic endurance are related to students' academic performance. Meanwhile, the instructor's enthusiasm, including helpfulness as well as his/her interaction with the students, and the students' habits of self-study show no relation to the students' performance. A major contribution of this finding is that it can help the instructors of a private university to develop and enhance the quality of online teaching and learning for accounting courses.

Keywords: *Online Teaching and Learning, Students Performance, Accounting Courses, COVID-19 Pandemic*

บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์ เพื่อศึกษาความสัมพันธ์ระหว่างตัวแปรพยากรณ์ ได้แก่ คุณลักษณะชั้นเรียน ความกระตือรือร้นของผู้สอน การจัดการการสอน การมีปฏิสัมพันธ์ของผู้สอน การให้ความช่วยเหลือของผู้สอน การให้ความเป็นธรรมของผู้สอน การเรียนรู้ของนักศึกษา การเรียนรู้ด้วยตนเองของนักศึกษา และความพยายามของนักศึกษา กับตัวแปรเกณฑ์ คือ ประสิทธิภาพการเรียนของนักศึกษาในชั้นเรียนออนไลน์ โดยใช้แบบสอบถามออนไลน์เป็นเครื่องมือ ในการเก็บรวบรวมข้อมูลจากตัวอย่างนักศึกษาบัญชี มหาวิทยาลัยเอกชนแห่งหนึ่งจำนวน 370 คน ในระหว่างช่วงเวลา มกราคม ถึง พฤษภาคม 2563 ซึ่งเป็นช่วงที่เกิดการระบาดของโควิด-19 ข้อมูล ที่เก็บรวบรวมได้ถูกนำมาวิเคราะห์ด้วยวิธีทางสถิติความถดถอยเชิงพหุ ผลการศึกษา พบว่า คุณลักษณะชั้นเรียน การจัดการการสอนของผู้สอน การให้ความเป็นธรรมของผู้สอน การเรียนรู้ ของนักศึกษา และความพยายามของนักศึกษา มีความสัมพันธ์กับประสิทธิภาพการเรียนของ นักศึกษาในชั้นเรียนออนไลน์ แต่ความกระตือรือร้นของผู้สอน การมีปฏิสัมพันธ์ของผู้สอน การให้ ความช่วยเหลือของผู้สอน และการเรียนรู้ด้วยตนเองของนักศึกษา ไม่มีความสัมพันธ์กับ ประสิทธิภาพการเรียนของนักศึกษาในชั้นเรียนออนไลน์แต่อย่างไร ผลการวิจัยนี้คาดว่าจะเป็น ประโยชน์ต่อครูผู้สอนในการพัฒนา และยกระดับวิธีการจัดการเรียนการสอนออนไลน์สำหรับ มหาวิทยาลัยเอกชน ภาควิชาการบัญชีให้มีคุณภาพมากยิ่งขึ้น โดยเฉพาะในช่วงของการระบาดของ โควิด-19

คำสำคัญ *ชั้นเรียนทางออนไลน์ ประสิทธิภาพการเรียนรู้ของนักศึกษา วิชาการบัญชี การระบาดของไวรัสโควิด-19*

Introduction

On March 11, 2020, the World Health Organization announced the Corona Virus Disease (COVID-19) pandemic, causing fear and panic around the world. Universities across the world were forced to close their campuses and move all of their classes

online (Bao, 2020). Universities were unprepared for such a change from traditional classroom to entirely online. Fortunately, there were several online tools available to support online teaching and learning (Nash, 2020). Nonetheless, aligning academic programs in an online instruction was a challenging for universities along with instructors, and students.

"Online learning requires the reconstruction of student and instructor roles, relations, and practices" (Vonderwell, 2004, p. 31). Many factors, such as technical aspects, user-friendly, class assignment, and evaluations, can influence the effectiveness of online learning (Shuey, 2002; Wijekumar, Ferguson, & Wagoner, 2006). Since the COVID-19 pandemic has prompted many universities to turn to online mode rather than offline mode, it is critical for universities to consider what factors will influence student performance in the future especially for private universities since they are in a competitive environment e.g. competing for new students, investing high costs on technology for online class, and preparing teachers to be ready for online class. As opposed to offline class, the online class has a somewhat different environment. The design and delivery of online classes have a significant effect on student satisfaction, learning, and performance (Irani, 1998). Another important reason that the study focused on students in accounting courses was that teaching accounting online could be very challenging and required the preparation both teachers and students. In Thailand, most of the higher education teaching and learning are on campus. Therefore, it is necessary to examine the factors for preparing the readiness of online teaching and learning for instructors and students that affect student's performance.

This study applied Students' Evaluations of Educational Quality (SEEQ) Instrument developed by Marsh (1984, 1995) to determine factors affecting student performance in online classes. SEEQ is a reliable instrument to indicate an effective teaching and has been used by many research in education fields (Marsh, Touron, & Wheeler, 1985; Watkins & Akande, 1992). However, those previous studies used SEEQ to measure the teaching quality, we could not find study that examine the relationship between SEEQ and student performance. Thus, this study could enhance SEEQ instrument to another level. This study will focus only on students who took accounting courses in private university during COVID-19 pandemic.

The objectives of this study are

1. to identify the determinants of the student performance in online teaching and learning.

2. to examine the relationship between those determinants and the student performance in online teaching and learning.

Literature Review and Hypotheses Development

The COVID-19 pandemic has shifted the educational landscape, causing learning and teaching strategies to be optimized. Educational institutions have been forced to teach online. Before COVID-19 pandemic, online class is increasingly popular, whether for convenience, to accommodate work from home, or study from home. After the pandemic, online class is even more important than ever.

The Students' Evaluations of Educational Quality (SEEQ) Instrument is increasingly being used for purposes such as providing input to lecturers, which may contribute to improved teaching, student course selection, and research study. SEEQ proves that it is multidimensional (e.g., a teacher may be enthusiastic but lack organization), accurate, consistent, fairly true against a variety of measures of successful teaching, relatively unrelated to a wide range of context variables, and useful to lecturers for enhancing teaching effectiveness. (Marsh, 1987, 1995; Marsh & Dunkin, 1992).

Student performance

Student performance refers to the knowledge or skills that students can achieve on completion of a course or program of study (Ni, 2013). Student performance is an important mean to assess the quality of learning and teaching. Proper interaction with the instructor is the main contributor to student performance whether it is online or on-campus teaching and learning. Research have shown that the role of an instructor changes when it comes to online education as compared to traditional classroom teaching (Kim & Bonk 2006). Therefore, proper trainings and support are required for online instructors. Successful interaction between the subjects involved in teaching and learning is also essential for a better student performance. Most systems, for example, LMS and MS Team have interactive tools like messages, forums, online exercises, Moodle quizzes and virtual classrooms for effective interaction between students and teachers.

A study conducted by Vogel on student performance showed that the grades of students who had an online class were 16% higher than on-campus class. Online classes give students the advantage of scheduling and flexibility, but student-instructor interaction is limited when compared to on-campus classes (Vogel, 2011). The extent of student performance depends on the quality of the course taught, how well they are planned and the course instruction rather than technological skills and abilities (Johnston, Killion, & Oomen, 2005). A comparative study conducted by Wiechowski and Washburn (2014) on student performance across learning models on finance and economics courses showed that, although, grades were lower for the online courses, students achieved greater satisfaction in online and blended courses rather than on-campus courses. Class characteristics, instructor characteristics and student characteristics

are three important factors affecting student performance (Leidner & Jarvenpaa, 1993). According to their study, reliability, quality, and medium richness were key factors to be considered in technology. Instructors' attitude towards technology, their teaching style and control of the technology significantly affecting the student performance of the course. Student performance was better when instructors have a positive attitude towards technology, adopt interactive teaching styles and have good control over technology to solve technical problems faced by students (Webster & Hackley, 1997). The emotional aspect of accepting technology in the learning process such as frustration and anxiety not only affects the interaction with the technological devices but also productivity and learning outcomes (Saadé & Kira, 2006).

Class characteristics is defined as the properties of the features in classroom including predictable, challenging, fun, informative, and flexible that are interesting properties (Baglione, 2013). Class characteristics such as challenging, interactive qualities of the class, informative, flexibility, and class size to aim at student-centered learning are factors that affect the learning outcomes in online teaching and learning. Setting class-size limits is a budget-related matter for administrators (Parker, 2003). The study showed that smaller classes achieve higher interactive levels. Flexibility and providing a common collaborative platform for sharing information in the class are vital for success in student performance. According to a study by Gilbert (1995), instruction which is intimate, interactive, and investigative produces the best teaching outcome in online education. The quality in instructor-student interaction is best achieved in smaller classrooms. Sugrue, Rietz, and Hansen (1999) conducted a study to determine relationships between class size, instructor location, student perceptions and performance and it was found that performance in smaller classes were better than in large classes, making it easier for interaction and exchanging of information. Thus, this study hypothesizes as follow:

H1: There is a relationship between class characteristics and student performance.

Instructor enthusiasm is defined as a lively and motivating teaching style that cover both how teachers feel about teaching a subject (experienced enthusiasm) and how they express these feelings to students (displayed enthusiasm) (Keller, Hoy, Goetz, & Frenzel, 2016; Frenzel, Taxer, Schwab, & Kuhbandner, 2019). A study by Arndt and Wang (2014) suggested three points, firstly, instructor enthusiasm played an important role on student performance, the higher the enthusiasm the more positive was the influence on student performance. Secondly, multiple types of training assessments were to be used for evaluating instructors, due to educators being unfriendly could

lead to lower evaluations even if learners learned the material well and thirdly, instructor enthusiasm influenced learning outcomes through both affective and cognitive pathways. Course administrators must try to analyze the strategies to be adopted in order to retain qualified faculty by understanding the motivations behind the enthusiasm or lack of enthusiasm toward teaching in an online environment, realizing that finding faculty to teach online is not easy (Brooks, 2003). Thus, this study hypothesizes as follow:

H2: There is a relationship between instructor enthusiasm and student performance.

Instructor organization is referred to as the ability of the instructor to organize the course materials, course outline and the course content to the students in a clear and transparent way to enable them to navigate through the course with flexibility and ease (Jaggars & Xu, 2016). According to Collis (1995), it was not technology but the instructional implementation of technology that impacted the effects on learning. The instructor plays a vital role in the effectiveness of online delivery. Webster and Hackley (1997) suggested that the attitude towards technology, the teaching style and control of technology by instructor were three important factors that influenced teaching or learning outcomes. Students who have instructors with a positive attitude towards distributed learning and who promote technology will enjoy more positive learning outcomes. However, students may feel isolated since they do not have the classroom environment to interact with the instructor (Serwatka, 1999). To develop and design an online course requires lot of hard work, therefore, instructors should be committed to their work and technical resources must be identified. A designed instructor is important for overall coordination (Haynes, 1997). Thus, this study hypothesizes as follow:

H3: There is a relationship between instructor organization and student performance.

Instructor interaction is defined as the instructor attempts to stimulate student interest in the course content and to motivate students in the learning process (Swan, 2003). An instructor who communicates in a confirmative manner and has an open approach to student's responses have a positive influence on students which results in positive emotions and ideas. Voice communication, proper usage of vocabulary, approval of feelings and thoughts and the general energy level contributes to effective instructor interaction (Bedir & Yıldırım, 2000). A new distance education model known as the community of inquiry developed by Garrison, Anderson, and Archer (2003) lays

emphasis on social factors and less focus on psychological factors; the model includes three main elements, social presence, cognitive presence and teacher presence. Thus, this study hypothesizes as follow:

H4: There is a relationship between instructor interaction and student performance.

Instructor helpfulness refers to the willingness to provide useful assistance to facilitate students for their learning (Martin, Wang, & Sadaf, 2018). A study by Garrison et al. (2003) recommend that an online presence can be implemented by creating a feeling of confidence and being welcomed; the feeling of belonging to a vital community; a sense of control; a sense of achievement; a willingness to participate in discourse; a conversational tone and a questioning attitude. Instructors can succeed in personalizing the learning environment by implementing a conversational style that reflect their personality. A strong emotional attachment can be established with personal illustrations and professional experiences and instructors should be capable of bringing out important content issues which motivate students to refer to their work and life experiences (Muirhead, 2004). Thus, this study hypothesizes as follow:

H5: There is a relationship between instructor helpfulness and student performance.

Instructor fairness refers to perceptions of fairness regarding outcomes or processes that occur in the instructional context, including the methods in which an instructor evaluates student's work, providing proper feedback to the students, and giving them the potential for further progress (Chory-Assad & Paulsel, 2004). A fair and accurate grading of student's work will have a significant influence on the student performance. A study by Dereshiwsky and Rich (2011) found that the types of assessments used for online and on-campus courses are usually not the same. More of objective-type questions are used to assess student performance for online courses, moreover, student assessment of online courses would depend on the efficiency and quality of the technical support that is available. Most instructional design models have depicted assessment as an important part of teaching and learning, connecting it to the evaluation of the instruction (Branch, 2009). Assessment methods can include a variety of techniques such as traditional methods of quizzes and examinations or authentic assessment methods such as ePortfolios, online journals or groupwork (Martin, Ritzhaupt, Kumar, & Budhrani, 2019). Baldwin, Ching, and Hsu (2018) identified several national and statewide evaluation instruments for online courses including quality maters, blackboard exemplary rubric, Open Suny Course Quality Review Rubric. Online

instructors also depend on student evaluation and peer evaluation to improve the quality of online courses. Thus, this study hypothesizes as follow:

H6: There is a relationship between instructor fairness and student performance.

Student learning refers to primarily the engagement of students with learning and teaching (Poon, 2013). The success of student learning will affect student performance of a course. According to Young (2006) there are the differences between online environment and on-campus such as the changing roles of students and instructors and an increased emphasis on planning. Young identified seven elements that were important to online teaching; adapting to student's needs, using meaningful examples, motivating students to do their best, facilitating the course effectively, delivering a valuable course, communicating effectively and showing concern for student learning. All these factors contributed to effective student learning. Instructor's technical competence played a crucial role in online student learning, where the instructor can handle technology and to guide the students (Volery & Lord, 2000). Thus, this study hypothesizes as follow:

H7: There is a relationship between student learning and student performance.

Student self-study refers to the ability of a student to adapt different learning techniques to study well during the academic session and contributes to successful learning outcomes and student performance (Anderson et al., 2007). Students who consider that their academic achievements are from their own hard work will turn out to be more successful in online education (Vrasidas & Glass, 2002). On the other hand, a lack of confidence in their learning capabilities can affect even graduate students. A student-centered model of learning involves taking personal responsibility by both instructors and students in their role in the learning process (Muirhead, 2004). Thus, this study hypothesizes as follow:

H8: There is a relationship between student self-study and student performance.

Student effort refers to student commitment and motivation to learn to reach academic achievement, e.g. attending lectures, seminars, completing projects and doing examinations (Bernard et al., 2009). Students take a different role in their learning in an online environment. Students face the difficulty of communication issues such as breakdowns and having regular and long email discussions leading to distress and

demotivation (Northrup, 2002). Students became frustrated when faced with ambiguous communications from the instructor and not getting proper feedbacks. Lack of communication, flexibility, feedback, and good quality of course materials were some of the difficulties faced by students (Sarker, Al Mahmud, Islam, & Islam, 2019). According to a study conducted by Spangle, Hodne, and Schierling (2002), the success of an online course depended on good communication skills, proper planning and designing of activities that promoted discussion and timely feedback from instructors. According to a study conducted by Larson-Birney (2000), students initially faced uncertainty in how to start the course online but gradually as the course advanced, they found web-based teaching much easier. Thus, this study hypothesizes as follow:

H9: There is a relationship between student effort and student performance.

Based on previous studies on students' evaluations of educational quality on learning outcomes, this study hypothesized a conceptual framework (Figure 1) to explain student performance and to examine the following proposed hypotheses in the next section:
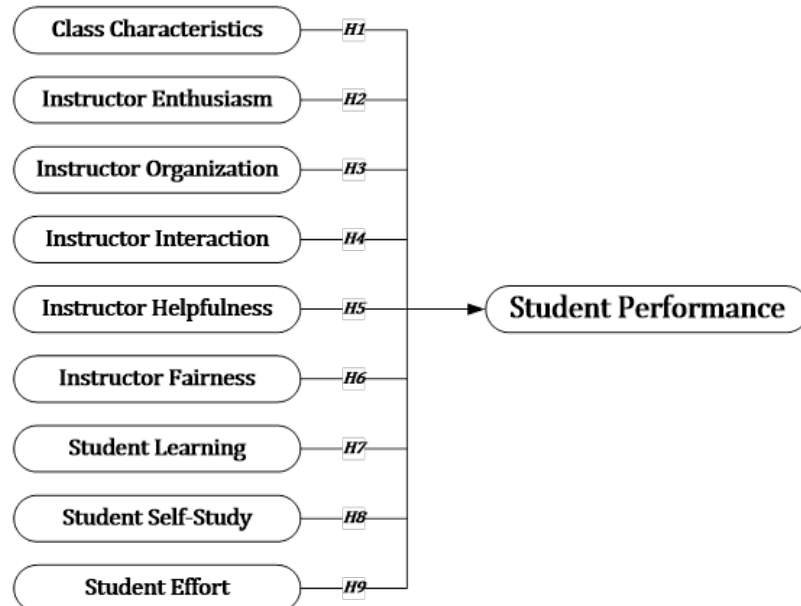

Figure 1 Conceptual Framework

Research Methodology
Data collection and analysis
The samples of this research are 370 students from one private university who

studied 6 accounting courses in one semester, during January-May 2020. These courses are Fundamentals of Financial Accounting, Fundamentals of Managerial Accounting, Taxation, Auditing, Accounting Information System, and Financial Statement Analysis. The data was collected through online questionnaires given the link by the teachers to their students in each class one week before final examination in April, 2020. All students who took these six subjects must answer the online questionnaire, therefore, the response rate is 100%. The student profiles are shown in table 1. It revealed that the majority of students are female (74.1%); Thai nationality (87.6%); cumulative GPA 2.50 - 2.99 (29.7%); credits completed 106 - 142 credits (48.1%); residence at home in Bangkok (78.9%).

Table 1 Student profiles and other characteristics (n = 370)

		Frequency	Percent
Gender	Male	96	25.9
	Female	274	**74.1**
Nationality	Thai	324	**87.6**
	Non-Thai	46	12.4
GPA	Less than 2.50	90	24.3
	2.50 - 2.99	110	**29.7**
	3.00 - 3.50	100	27.0
	Above 3.50	70	18.9
Credits completed	0 - 35	49	13.2
	36 - 70	83	22.4
	71 - 105	60	16.2
	106 - 142	178	**48.1**
Residence during your online class	Dormitory	45	12.2
	Home (in BKK)	292	**78.9**
	Home (in other provinces)	28	7.6
	Other	5	1.4

Measurement

The online questionnaire was used as the tool for collecting data. A multi-dimensional measure for ten constructs was developed based on the previous studies to measure perception of accounting students on online teaching and learning, with Likert scale ranging from 1 to 5, where 1 indicates strongly disagree, 2 indicates disagree, 3 indicates neutral, 4 indicates agree, and 5 indicates strongly agree. The first construct was class characteristics adopting nine item measures from Baglione (2013). Second construct was instructor enthusiasm adopting four item measures from Marsh and Roche (1992). Third construct was instructor organization adopting ten item measures from Marsh and Roche (1992). Fourth construct was instructor interaction adopting eight item measures from Marsh and Roche (1992) and Young (2006). Fifth construct was instructor helpfulness adopting seven item measures from Marsh and Roche (1992) and Drago, Peltier, and Sorensen, (2002). Sixth construct was instructor fairness adopting five item measures from Marsh and Roche (1992). Seventh construct was student learning adopting eight item measures from Marsh and Roche (1992). Eighth construct was student self-study adopting seven item measures from Marsh and Roche (1992). Ninth construct was student effort adopting five item measures from Marsh and Roche (1992). Tenth construct was student performance adopting three item measures from Kuhn and Rundle-Thiele (2009).

Measurement accuracy

Table 2 showed all the constructs are reliable, as Cronbach's alpha of each constructs range 0.874 - 0.947 exceeding the recommended value of 0.7 (Nunnally, 1978). Moreover, to examine the convergent validity, the average variance extracted (AVE), which refers to the shared average variance between the construct and its indicators and the composite reliability (CR) were used. In each construct, the AVE range 0.646 - 0.840, exceeded the threshold 0.5 (Hair, Anderson, Tatham, & William, 1998) and the CR range 0.871 - 0.947, exceeding the threshold 0.7 (Fornell & Larcker, 1981), indicating convergent validity exists. In addition, factor loadings of all item measures ranged from 0.649 to 0.923, exceeding 0.5 (Hair et al., 1998), assuring convergent validity.

Table 2 The results of factor loading, reliability, mean, and standard deviation of all
constructs

Constructs	Factor Loadings	Means	S.D.
Class characteristics (CC) (α = 0.886, AVE = 0.646, CR = 0.892)	0.719 - 0.882	2.76 - 3.5	0.912 - 1.311
Instructor enthusiasm (IN) (α = 0.902, AVE = 0.775, CR = 0.914)	0.855 - 0.923	3.33 - 3.44	0.891 - 0.945
Instructor organization (IO) (α = 0.946, AVE = 0.680, CR = 0.935)	0.649 - 0.879	3.20 - 3.43	0.887 - 0.989
Instructor interaction (II) (α = 0.947, AVE = 0.733, CR = 0.941)	0.790 - 0.892	3.24 - 3.43	0.932 - 1.017
Instructor helpfulness (IH) (α = 0.938, AVE = 0.731, CR = 0.933)	0.796 - 0.902	3.25 - 3.34	0.919 - 0.984
Instructor fairness (IF) (α = 0.942, AVE = 0.815, CR = 0.947)	0.871 - 0.920	3.31 - 3.38	0.829 - 0.945
Student learning (SL) (α = 0.942, AVE = 0.721, CR = 0.937)	0.714 - 0.892	3.04 - 3.5	0.902 - 1.121
Student self-study (SS) (α = 0.889, AVE = 0.647, CR = 0.877)	0.695 - 0.846	3.11 - 3.5	0.999 - 1.121
Student effort (SE) (α = 0.874, AVE = 0.669, CR = 0.871)	0.671 - 0.898	2.97 - 3.34	0.996 - 1.128
Student performance (SP) (α = 0.904, AVE = 0.840, CR = 0.930)	0.910 - 0.921	3.35 - 3.45	0.966 - 0.998

Note: KMO (0.838 - 0.956); variance extracted (64.665 - 81.523%); Bartlett's Test of Sphericity are all significant at
p value < 0.000

Discriminant validity determines if the measured variables differ from each
other (Santos-Vijande & Alvarez-Gonzalez, 2007). To assess discriminant validity followed
Fornell and Larcker (1981), they suggested that if square root AVE values were higher
than the correlations between the constructs as shown in table 3 discriminant validity
can be assured. Although the correlations of some variables were a bit higher than

square root AVE, it does not create a problem of multicollinearity as their VIF and tolerance value were in the cutoff point range shown in table 4. Thus, this implies that the variables represent different concepts.

Table 3 The result of discriminant validity of all constructs

	CC	IN	IO	II	IH	IF	SL	SS	SE	SP
CC	0.804									
IN	0.740**	0.880								
IO	0.756**	0.834**	0.825							
II	0.711**	0.764**	0.881**	0.856						
IH	0.675**	0.714**	0.853**	0.882**	0.855					
IF	0.682**	0.700**	0.830**	0.821**	0.865**	0.903				
SL	0.755**	0.706**	0.821**	0.839**	0.837**	0.819**	0.849			
SS	0.721**	0.660**	0.772**	0.792**	0.776**	0.763**	0.894**	0.804		
SE	0.488**	0.514**	0.578**	0.575**	0.631**	0.554**	0.622**	0.697**	0.818	
SP	0.774**	0.691**	0.798**	0.769**	0.765**	0.766**	0.793**	0.757**	0.585**	0.916

Note: **correlation is significant at the 0.01 level (2-tailed). *correlation is significant at the 0.05 level (2-tailed).
         The value on the diagonal is square root AVE (square root average variance extracted)

Hypotheses Testing

Multiple regression analysis is a method to show if the interested independent variables explain a statistically significant amount of variance in dependent variable after accounting for all other variables. This study applied stepwise regression to test the hypotheses.

Table 4 Multiple regression analysis results (stepwise) for H1-H9 (DV = student performance)

	Hypotheses	Model1	Model2	Model3	Model4	Model5	Tolerance	VIF	Results
H3	Instructor organization	0.798***	0.497***	0.323***	0.233***	0.213***	0.220	2.3	Supported
H1	Class characteristics		0.398***	0.304***	0.305***	0.308***	0.373	2.6	Supported
H7	Student learning			0.299***	0.221***	0.175**	0.284	3.5	Supported

Table 4 (cont.)

	Hypotheses	Model1	Model2	Model3	Model4	Model5	Tolerance	VIF	Results
H6	Instructor fairness				0.183**	0.178**	0.253	3.9	Supported
H9	Student effort					0.104**	0.598	1.6	Supported
	F value	644.608	437.085	329.195	257.173	212.203			
	p value	0.000	0.000	0.000	0.000	0.000			
	Adjusted R square	63.6%	70.3%	72.7%	73.5%	74.1%			

Note: *** $p<0.000$, ** $p<0.001$, *$p<0.05$; Durbin-Watson = 2.083; VIF of each construct ranged 1.674-4.558 which was below threshold 10 (Kleinbaum, Kupper, Muller, and Azhar, 1998), indicating no problem of multicollinearity.

Table 4 illustrated five regression model. The first model reported instructor organization is significant (β = 0.798, p<0.000) with adjusted R square value of 63.6%. The second model reported the significant effect of instructor organization (β = 0.497, p<0.000) and class characteristics (β = 0.398, p<0.000) with adjusted R square value of 70.3%. The third model reported the significant effect of instructor organization (β = 0.323, p<0.000), class characteristics (β = 0.304, p<0.000), and student learning (β = 0.299, p<0.000) with adjusted R square value of 72.7%. The fourth model reported the significant effect of instructor organization (β = 0.233, p<0.000), class characteristics (β = 0.305, p<0.000), student learning (β = 0.221, p<0.000), and instructor fairness (β = 0.183, p<0.001) with adjusted R square value of 73.5%. The fifth model reported the significant effect of instructor organization (β = 0.213, p<0.000), class characteristics (β = 0.308, p<0.000), student learning (β = 0.175, p<0.001), instructor fairness (β = 0.178, p<0.001), and student effort (β = 0.104, p<0.001) with adjusted R square value of 74.1%. Based on the above results, the fifth model showed the best model fits to the data comparing with the other models with the highest adjusted R square. In conclusion, H1, H3, H6, H7, and 9 were supported and H2, H4, H5, and H8 were not supported (see the summary in table 5).

Since the results uncovered four constructs which were instructor enthusiasm, instructor interaction, instructor helpfulness, and student self-study have no significant effect on student performance, the statistical power should be assessed through a restrictive post-hoc power analysis as suggested by Brock (2003). Based on post-hoc statistical power calculator for multiple regression of Soper (2020), this model got predictive power > 0.999, exceeding the threshold of 0.80 (Cohen, 1988; Cohen, Cohen, West, & Aiken, 2003), presenting high statistical power which means these four constructs had theoretically effects on student performance but not in this study or this context.

Table 5 Summary of hypotheses results

H1	There is a positive relationship between class characteristics and student performance.	Supported
H2	There is a positive relationship between instructor enthusiasm and student performance.	Not supported
H3	There is a positive relationship between instructor organization and student performance.	Supported
H4	There is a positive relationship between instructor interaction and student performance.	Not supported
H5	There is a positive relationship between instructor helpfulness and student performance.	Not supported
H6	There is a positive relationship between instructor fairness and student performance.	Supported
H7	There is a positive relationship between student learning and student performance.	Supported
H8	There is a positive relationship between student self-study and student performance.	Not supported
H9	There is a positive relationship between student effort and student performance.	Supported

Since the COVID-19 pandemic has prompted many universities to turn to online mode rather than offline mode, it is critical for universities to consider what factors will influence student performance in the future. As opposed to offline class, the online class has a somewhat different environment. The design and delivery of online classes have a significant effect on student satisfaction, learning, and performance.

Conclusion and Discussion

This study applied Students' Evaluations of Educational Quality (SEEQ) Instrument developed by Marsh (1984, 1995) to determine factors affecting student performance in online classes. There are nine determinants which are class characteristics, instructor enthusiasm, instructor organization, instructor interaction, instructor helpfulness, instructor fairness, student learning, student self-study, and student effort. The sample was drawn from students who took accounting courses of online teaching and learning in private university during COVID-19 pandemic. The data were collected

through the online questionnaires. The results revealed that class characteristics, instructor organization, instructor fairness, student learning, and student effort were related to student performance but not instructor enthusiasm, instructor helpfulness, instructor interaction, and student self-study. The results extend the use of SEEQ instrument in higher level by linking the instruments with the student performance as it has not been studied in the past.

Class characteristics affected student performances. This result is consistent with the research conducted by Johnston ed al. (2005), showing that students enjoyed the flexibility in education with the benefit of accessing the course from any place and at a convenient time. A study by Vogel (2011) also suggested that online classes enabling proper scheduling of classes and flexibility in learning. Students gained more information and knowledge as they could review the lessons from recorded videos (Myring, Bott, & Edwards, 2014). Instructor organization affected student performances. Instructor organization and clarity form the top criteria of students' expectations which is consistent with a study by Schubert-Irastorza and Fabry (2011), stating that instructors were expected to be well prepared with their lectures, course schedules and grading criteria. A study by Webster and Hackley (1997) also suggested that the attitude towards technology, the teaching style and control of technology by instructor were three important factors that influences teaching or learning outcomes. Instructor fairness affected student performances. This is consistent with a study by Branch (2009) stating that most instructional design models have depicted assessment as an important part of teaching and learning, connecting it to the evaluation of the instruction. Student effort affected student performances. This is consistent with a study conducted by Larson-Birney (2000), revealing that students initially faced uncertainty in how to start the course online but gradually as the course advanced, they found web-based teaching much easier. A study by Porter, Pitterle, and Hayney (2014) stated that students in distance education enjoy flexibility in their courses and have the advantage of completing their workloads at their own pace.

Unfortunately, there are some factors in this study that did not affect student performance. Instructor enthusiasm did not affect student performance. This is consistent with the study by Bouhnik and Marcus (2006) that lack of atmosphere and direct interpersonal interaction, limited ability of instructors to show their enthusiasm in answering questions were the top reasons for students' dissatisfaction in online learning. It is important to create a proper atmosphere where students can feel the instructor enthusiasm in teaching. In a study by Lee and Lim (2010), in on-campus teaching, instructors are able to express their enthusiasm through the aggregated frequency of enthusiastic or encouraging nonverbal behaviors such as facial expressions,

vocalizations and gestures, but online learning restricts display of instructor enthusiasm. Instructor helpfulness did not affect student performance. A study by Moore (1989) stated that lack of face to face interaction in online learning may result in a psychological and communication gap between instructor and students. Lack of personal attention can restrict the achievement of the desired level of understanding among them. According to Moore, the transactional distance theory revealed that conversations between students and the instructor plays an important role in bridging the gaps between them. The communication gap leads to lack of personal attention or helpfulness. Positive interaction and personal communication enable the learner to come under the influence of the instructor, which enable the student to interact with the instructor in his own personal need and style, which helps in effective understanding of the content. Instructor interaction did not affect student performances. The study by Vogel (2011) suggested that instructor and student interactions are asynchronous and unless class assignments and projects are explained clearly, students could start off on the wrong tangent, and student-instructor interactions are more formalized, and changes or modifications to course content, assignments, and other activities are not easily introduced. Student self-study did not affect student performance. A study by Dereshiwsky and Rich (2011) suggested that online courses undergo the limitation of conducting exams in a classroom environment and therefore, more of multiple-choice and objective tests are utilized which affects students' performance. According to a study by Muirhead (2004), lack of personal responsibility by both instructors and students in their role will be a limitation to following a student-centered model of learning.

The contribution from this research to lecturers, students, academician, and education administrators in the context of Thailand educational institutions are: 1) online classes are enabling proper scheduling of classes and flexibility in learning, and students should be allowed to keep record video in order to gain more information and knowledge as they could review the lessons ; 2) lecturers must be well prepared with their lectures, course schedules, effective and enjoyable teaching style, efficient control of technology and fair grading criteria; 3) students achievement depended on their discipline in time management, pay more attention in online class, spend more effort in self-study, and the most important is their ethical mind and behavior, uphold and maintain integrity in preparing all assignments, reports and examinations.

Limitation

This study has helped us understand how these determinants are related to the student performance, but there are still some limitations. First, the study collected

data from one private university which may be lack of generalizability, therefore, the future research is recommended to include more private universities. Second, this study did not test for the variation effect of the six accounting courses and the groups of students who have different credit earned which might bias the results, therefore, the future research should consider testing these effects before combining the data to reduce bias that might occur. Lastly, this study measured the student performance using subjective measures, therefore, to verify these relationships, the future research should use objective measures to measure the student performance.

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