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Factors Affecting Students' Satisfaction with Online Learning and Intention to Use Online Learning

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온라인 수업 만족도 및 사용 의도에 미치는 요인들 연구

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Abstract Due to the Corona-19 pandemic, online education has grown worldwide and it is now being predicted that online education will dominate the future of education. This study examines, as characteristics of the human factor, the effect of self-efficacy; as system factors influencing learners' satisfaction with online learning and behavioral intention to use online learning, this study examines perceived social presence and perceived teaching presence. Participating in this study were 236 students who filled out an online survey in return for course credits. Study findings suggest that individuals with high social presence and teaching presence will have higher satisfaction with online learning and higher behavioral intention to use online learning than those with low social presence and teaching presence. The study also found that individuals with high self-efficacy have higher satisfaction with online learning and higher behavioral intention to use online learning than those with low self-efficacy. This study provides theoretical implications as well as practical implications for e-learning educators when it comes to enhancing students' satisfaction with online learning and behavioral intention to use online learning.

Key Words : Social presence, Teaching presence, Self-efficacy, Satisfaction, Behavioral intention

요 약 코로나 19 팬데믹으로 인해 온라인 교육 시장은 전세계적으로 성장했으며, 온라인 교육은 미래 교육을 지배할 것이라는 예상이다. 본 연구는 온라인 수업 만족도 및 온라인 수업 사용 행동 의도에 영향을 줄 수 있는 인간적 요인으로 자기효능감, 시스템 요인들로 인지된 사회적 실재감 및 인지된 교수 실재감의 효과를 살펴보고 있다. 본 연구에는 수업에서 추가 점수를 받은 조건으로 236명의 학생들이 온라인 서베이에 참여했다. 연구결과, 사회적 실재감과 교수 실재감이 높은 사람들은 사회적 실재감과 교수 실재감이 낮은 사람들보다 온라인 수업 만족 및 온라인 수업 행동 의도가 높은 것으로 나타났다. 또한, 본 연구는 자기 효능감이 높은 사람들은 자기 효능감이 낮은 사람들보다 더 높은 온라인 수업 만족 및 온라인 수업 행동 의도를 보인다는 결과를 밝혀냈다. 본 연구는 온라인 수업에서 학생들의 만족도 및 온라인 교육 사용 의도를 높이는데 있어 이론적 그리고 실무적 시사점을 제공한다.)

주제어 : 사회적 실재감, 교수 실재감, 자기 효능감, 만족도, 행동 의지

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1. Introduction

Online learning is critical to the long-term growth of higher education. According to one report, the increase in demand for online courses or programs is greater than that for traditional face-to-face classroom learning [1]. Thanks to developments in the distance education sector, online learning has, in many countries, become a popular alternative to traditional face-to-face classroom learning. In terms of online advertising education, Weigold suggests that online class is equally or more effective than many face-to-face classes if universities create a culture that embraces clear guidelines that promote best practice [2]. Due to precautions taken for the COVID 19 pandemic, all levels of education—from elementary schools to universities—have been relying on online learning.

Previous research has shown that, in terms of effectiveness and quality, online learning and traditional face-to-face classroom learning are comparable [3,4]. When compared to traditional face-to-face classroom learning, students' satisfaction with online learning remains undiminished [5]. National Center for Education Statistics reported that 67% of respondents mentioned that distance education provides access to college for those who otherwise would not have access [6]. Other factors explaining why respondents prefer distance learning include flexibility of course schedule, more available courses, and increase in student enrollment [6].

There are a great deal of benefits and advantages of adopting online learning into schools [7-10]. First, online learning is considered to be cost effective in the sense that there is no need for students and instructors to travel [9]. Second, online learning is convenient because learners can choose the place and time that suits them [11]. Third, online learning can provide learners with opportunity to interact with other learners, exchange and respect different point of views [12]. In spite of these benefits, attrition rates for online learning are 10% to 20 % greater than traditional face-to-face classroom learning [8], [12, 13]. In addition, online education sustained dropout rates of 30% [15] and of 20% to 50% [16].

It is thus important to identify the factors contributing to these high attrition and dropout rates. This study focuses on presence and self-efficacy. That is, this study examines the effect of self-efficacy as a human-factor characteristic and, as system factors, perceived social presence and perceived teaching presence. The latter two may influence learners' satisfaction with online learning. Our findings could provide educators with a baseline understanding of how they can enhance learners' satisfaction with online learning and behavioral intention to use online learning.

2. Literature Review

2.1 Social Presence

Social presence is defined as "the degree to salience of the other person in the interaction and the consequent salience of the interpersonal relationship" [17]. In an e-learning context, social presence refers to "the degree of feeling, perception, and reaction of being connected by computer mediated communication to another intellectual entity" [18]. Social presence is considered to be one of the most significant factors in distance education [18]. Tu suggested that, within a computer-mediated communication environment, a strong predictor of satisfaction is social presence [19].

Prior research has also found that social presence is a significant variable for learners' achievement and learning satisfaction [20-22].

Swan and Shih found a strong correlation between social presence, perceived learning, perceived interaction and satisfaction with the instructor [22]. Johnson, Gueutal, and Falbe contended that individuals' perceptions of social presence will be positively related to course satisfaction [23]. Furthermore, Researchers also suggest that social presence has strong impacts on the overall student satisfaction in computer-mediated communication environments [24,25].

The above discussion leads to the following hypothesis:

H1: Individuals with high social presence will have a) higher satisfaction with online learning and b) higher behavioral intention to use online learning than those with low social presence.

2.2 Teaching Presence

Teaching presence has been defined as "the design, facilitation, and direction of cognitive and social processes for the purpose of realizing personally meaningful and educationally worthwhile learning outcomes" [26]. Teaching presence is characterized as having three components such as 1) course design and organization, 2) facilitating discourse, and 3) direct instruction [26]. In an empirical study for examining the relationship between teaching presence and learner satisfaction Shea, Pickett, and Pelz found that all the sub-components of teaching presence such as instructional design and organization, facilitating discourse, and direct instruction were significantly correlated with learner satisfaction [27]. Joo, Lim, and Kim also found that teaching presence has a positive effect on learner satisfaction as well as learner persistence [28]. In addition, Anderson et al. found significant correlations between teaching presence and students' satisfaction with and perceived learning from online courses [26]. Hence, the following hypothesis is posited:

H2: Individuals with high teaching presence will a) higher satisfaction with online learning and b) higher behavioral intention to use online learning than those with low teaching presence.

2.3 Self-Efficacy

Bandura defined self-efficacy as the degree to which an individual is confident that he or she can perform a specific task or achieve a specific goal [29]. Self-efficacy can also be defined as "beliefs in one's capabilities to organize and execute the course of action required to produce given attainments" [29]. Self-efficacy refers to "generative capability in which cognitive, social, and behavioral sub-skills must be organized into integrated courses of action to serve an innumerable purpose" [30].

In an e-learning context then, self-efficacy is defined as a learner's belief that her performance can be improved through achievement-related behavior [31]. Prior research has found that self-efficacy is a predictor of students' satisfaction with online learning environments [32-34]. Womble found significant and positive correlation between e-learning self-efficacy and e-leaner satisfaction among 440 government agency employees [35] And Lin, Lin, and Laffey also found that self-efficacy significantly impacted online learning satisfaction [36]. In general, study results indicate that self-efficacy was positively correlated to learning satisfaction. Based on the above discussion, the following hypothesis is proposed as below:

H3: Individuals with high self-efficacy will have a) higher satisfaction with online learning and b) higher behavioral intention to use online learning than those with low self-efficacy.

3. Method

3.1 Study Design, Participants, and Procedure

The study employed a 2 x 2 x 2 between-subject factorial design. The three factors were social presence (low vs. high presence), teaching presence (low vs. high teaching presence), and self-efficacy (low vs. high self-efficacy). These three factors were used as measured independent variables, following a median split procedure, as carried out in previous research.

The primary data were collected via a Web-based survey. Taking part were 257 students, though after removing incomplete responses there was a total of 236 students. Making up the largest portion were juniors (38.1%, n = 90); the rest were sophomores (37.3%, n = 88), freshmen (16.5%, n = 39), and seniors (8.1%, n = 19); 33.5% (n = 79) were male and 66.5% (n = 157) were female. Their mean age was 23.2 years old.

An online survey was created to collect data from college students. First, online survey invitation e-mails were sent out to students. Second, only students who agreed to participate and provide consent were selected as participants. Third, they were asked to click on the "Proceed" button to complete the survey.

3.2 Measure

Social presence was measured on a 7-point scale anchored with "strongly disagree" (1) and "strongly agree" (1) by having participants respond to eight statements. Examples include 1) I respected the others' opinions in making decisions, 2) I paid close attention to the other participants, 3) I was able to be personally close to other participants in the class, and 4) I was able to be personally close to other participants in the class. The measure of social presence, modified for the current study, was adopted from Tu [18]. The reliability for relevancy was .82.

For teaching presence, the research team adopted and modified six items developed by Shea, Pickett, and Pelz [27]. Items included the following: 1) The instructor clearly communicated important course goals and course topics; 2) The instructor provided clear instructions on how to participate in course learning activities; and 3) The instructor was helpful in guiding the class towards agreement/understanding about course topics that helped me to learn. These six items were measured on a 7-point scale anchored with "strongly disagree" (1) and "strongly agree" (7). The reliability for relevancy was .79.

Self-efficacy was measured on 7-point scale anchored with "strongly disagree" (1) and "strongly agree" (7) and was originally developed by Liaw [37]. This measure was based on three items—1) I feel confident using the e-learning systems, 2) I feel confident operating e-learning functions, and 3) I feel confident using online learning contents. Reliability for self-efficacy was .93.

Lastly, satisfaction with online learning was measured on 7-point scale anchored with "strongly disagree" (1) and "strongly agree" (7), and was developed by Eom & Ashill [38]. This measure was based on four items—1) I would recommend this instructor to other students, 2) I would recommend this online class to other students, 3) I would take an online class at this university again in the future, and 4) I was very satisfied with this online class. Reliability for self-efficacy was .80. Intention to use online learning was measured on a 7-point scale, ranging from 1 = strongly disagree to 7 = strongly agree, using three items taken from Malhotra and Galletta [39] and modified for the current study. The items were as follows: "I intend to use e-learning to assist my learning"; "I intend to use online instruction to assist my

learning"; and "I intend to use the Internet to assist my learning." The Cronbach's alpha coefficient for this study for self-management learning was .81.

4. Results

4.1 Effects of Social Presence

H1 posits that individuals with high social presence will have higher satisfaction with online learning and higher behavioral intention to use online learning than those with low social presence. As can be seen in Table 1, results indicate the Wilks' lambda for social presence is significant (Wilks' Lambda = .92, F = 10.11, p 〈 .001).

Table 1. MANOVA Results

Effects	Wilk's Lambda	*df*	*F*	*P*
Main Effects				
Social Presesence (A)	.92	(2, 228)	10.11	.000
Teaching Presence (B)	.94	(2, 228)	7.92	.000
Self-Efficacy (C)	.97	(2, 228)	3.35	.037
A*B	.99	(2, 228)	.09	.913
A*C	.99	(2, 228)	1.08	.343
B*C	.99	(2, 228)	.45	.639
A*B*C	.96	(2, 228)	.42	.661

Since social presence was a significant factor, further analyses were conducted to examine its effects on satisfaction with online learning and behavioral intention to use online learning. As Table 2 indicates, univariate analyses show that social presence has an effect on satisfaction with online learning (F = 18.92, p 〈 .001) and behavioral intention to use online learning (F = 12.68, p 〈 .001).

An examination of mean differences between the high-social presence and low-presence suggested that high presence yielded higher satisfaction with online learning (Mean low social presence = 4.60 vs. Mean high social presence = 5.24) as well as behavioral intention to use online learning (Mean low social presence = 4.98 vs. Mean high social presence = 5.49) than low social presence. Thus, H1a and H1b were supported in this study.

Table 2 Tests of Between-Subject Effect

DV	IV	df	Mean Square	F	P
Satisfaction	Social Presence (A)	(1,228)	21.06	18.92	.000
	Teaching Presence (B)	(1,228)	17.70	15.90	.000
	Self-efficacy (C)	(1,228)	4.96	4.46	.036
	A*B	(1,228)	.20	.18	.670
	A*C	(1,228)	2.14	1.92	.167
	B*C	(1,228)	.99	.89	.346
	A*B*C	(1,228)	.91	.82	.367
Behavioral Intention	Social Presence (A)	(1,228)	13.64	12.68	.000
	Teaching Presence (B)	(1,228)	6.63	6.07	.014
	Self-efficacy (C)	(1,228)	6.60	6.14	.014
	A*B	(1,228)	.05	.05	.824
	A*C	(1,228)	1.62	1.51	.221
	B*C	(1,228)	.25	.24	.627
	A*B*C	(1,228)	.21	.20	.656

4.2 Effects of Teaching Presence

H2 proposes that individuals with high teaching presence will experience higher satisfaction with online learning and higher behavioral intention to use online learning than those with low teaching presence. As shown in Table 1, results indicate the Wilks' lambda for teaching presence is significant (Wilks' Lambda = .94, F = 7.92, p 〈 .001). Since teaching presence was a significant factor, further analyses were conducted to examine its effects on two dependent variables. As seen in Table 2, univariate analyses show that teaching presence has an effect on satisfaction with online learning (F = 15.90, p 〈 .001) and behavioral intention to use online learning (F = 6.07, p 〈 .05).

An examination of mean differences between

high teaching presence and low teaching presence suggested that high teaching presence is correlated with higher satisfaction with online learning (Mean low teaching presence = 4.63 vs. Mean high teaching presence = 5.21) and behavioral intention to use online learning (Mean low teaching presence = 4.18 vs. Mean high teaching presence = 5.41) than low teaching presence. Hence, H2a and H2b were supported in this study.

4.3 Effects of Self-Efficacy

H3 posits that individuals with high self-efficacy will have higher satisfaction with online learning and higher behavioral intention to use online learning than those with low self-efficacy. As Table 1 indicates, results show that the Wilks' lambda self-efficacy was significant (Wilks' Lambda = .97, F = 3.35, $p < .05$). As seen in Table 2, univariate analyses show that self-efficacy had an effect on satisfaction with online learning ($F = 4.46$, $p < .05$) behavioral intention to use online learning ($F = 6.14$, $p > .05$).

An examination of mean differences between high self-efficacy and low self-efficacy suggested that the former generated higher satisfaction with online learning (Mean low self-efficacy = 4.77 vs. Mean high self-efficacy = 5.07) and higher behavioral intention to use online learning (Mean low self-efficacy = 5.06 vs. Mean high self-efficacy = 5.41). Therefore, H3a and H3b were supported in this study.

5. Discussion

Due to the COVID-19 pandemic universities had no choice but to adopt online education worldwide. Consequently, an important research topic has come to center around how educators can enhance students' satisfaction with online learning. Thus, this study delved into what factors influence learners' satisfaction with online learning and behavioral intention to use online learning. Prior research suggests social presence, teaching presence, and self-efficacy as significant factors [17], [19], [20-25], [29-31].

First, this study found that individuals with high social presence experience higher satisfaction with online learning and higher behavioral intention to use online learning than those with low social presence. These results are consistent with prior research that has suggested social presence plays a significant role in learners' achievement and learning satisfaction [19-21]. It would seem then that further discussion is warranted on how educators might enhance social presence in the e-learning context. Again, this type of presence refers to the degree of feeling, perception, and reaction a person feels when being connected by computer-mediated communication to another intellectual entity. By enhancing interactions between students and instructors, and interactions among students, students' perceived social presence could be improved, and consequently leads to online course satisfaction and intention to retake online courses.

Second, this study found that individuals with high teaching presence have higher satisfaction with online learning and higher behavioral intention to use online learning than those with low teaching presence. It is thus evident that teaching presence is an important predicting variable for students' satisfaction with online learning and behavioral intention to use online learning as suggested in previous research [24,25]. Teaching presence which consists of course design and organization, facilitating discourse, and direct instruction should be considered important components of an e-learning environment [25,39].

Third, according to this study, individuals with

high self-efficacy have higher satisfaction with online learning and higher behavioral intention to use online learning than those with low self-efficacy. This result corroborates the fact that self-efficacy is a predictor of students' satisfaction with online learning environments [32-34]. Liaw and Huang defined self-efficacy as a learner's belief that his performance can be improved through achievement-related behavior. It is clear then that an important factor in the e-learning context is self-efficacy [31].

This study provides practical implications for educators. First, it is important for educators to make online learning students to feel that they are constantly connected with educators and two-way interactions occur between students and educators during a class period. As study findings suggest, a sense of being connected will promote course satisfacton as well as intention of taking online courses. Second, regardless of the delivery mechanism (i.e., online or face-to-face classes), Gangadharbatla suggests that it is more important for ad programs to provide an advertising education rooted strongly in clear learning objectives, measurable outcomes, and rigorous assessment [40]. With clear learmng objectives, measurable outcomes, and rigorous assessment, eductators need to focus on course design and organization, facilitating discourse, and direct instruction in order to enhance learners' satisfaction. Lastly, since individual counseling and open-discussion are somewhat limited under online learning environment, it is difficult for educators to measure learners' self-efficacy in class. Thus, educator, while teaching online, need to encourage students to accoplish course objectives and promotes a sense of self-efficacy.

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