

Verification of the Moderating Effect of Course Satisfaction on Learning Presence, and Academic Performance According to Course Delivery Mode*

Sanghee KIM**

Hansung University
Korea

This study examined the moderating effect of course satisfaction with class on the relationship between the mode of course delivery and learning presence and performance in university settings. Results showed that there was a moderating effect of the course satisfaction on the relationship between course delivery mode and learning presence. Specifically, higher satisfaction with instructor's teaching activities was associated with improved learning presence in face-to-face, blended, and online learning, in that order. However, there was no significant moderating effect on academic performance. These findings suggest that universities should consider not only the mode of course delivery and highlight the importance of systematic course design by instructors.

Keywords : Satisfaction on class, Learning presence, Online learning, E-learning, Course delivery, Moderating effect

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** Corresponding author: Center for Teaching and Learning, Hansung University,
kshow321@naver.com

Introduction

Due to COVID-19, not only elementary and middle schools but also higher education institutions have conducted classes entirely online. According to a survey by the Ministry of Education(MOE, 2021), in the 2021 academic year, 10 universities conducted all classes online, 224 universities operated with a mix of online and in-person classes based on the social distancing policies, and 0 university held all in-person classes, making online classes the norm. Learners have expressed both positive preferences for online classes (Lee & Shin, 2020) as well as difficulties and complaints about the sudden switch to online classes (Kang et al., 2020; Lee & Shin, 2020).

In the situation of online classes, universities should strive to satisfy learners' course satisfaction and promote their academic performance. Learners' sense of presence in online classes has been proven to be a factor that determines their course satisfaction and academic performance (Doo et al., 2017; Joo et al., 2010; Kim & Lim, 2010; Lee & Park, 2012). Therefore, in order to achieve academic performance in online classes, it is necessary to enhance learning presence in class through effective class operation.

The modes of online class operations mainly included real-time classes, classes that utilize lecture-based contents, and classes centered on assignments, as presented by the MOE(2020). Depending on the universities, some conducted blended learning (a combination of real-time and lecture-based content classes, or limited in-person and online classes). In related studies, Lee and Seo(2021) reported that course satisfaction was significantly higher in real-time classes than in in-person classes, and the satisfaction with blended classes was significantly higher than that of real-time classes. On the other hand, Kang et al.(2020) reported that students experienced difficulties in online classes, such as difficulty in concentrating during lectures and a decline in understanding of the study materials. Given the results of the aforementioned studies on the course satisfaction and learners' perceptions, it can be inferred that the

learners' learning presence in classes can be different from the modes of course delivery.

Even though the learners' learning presence in class is not only a factor that significantly affects academic performance (Doo et al., 2017), but also a mediating variable for learners' satisfaction or academic performance in online class situations (Kang, 2021; Park & Yoo, 2014). However, research on the factors influencing the sense of presence and how it differs according to the modes of course delivery is still insufficient. In particular, previous studies have only investigated the differences in presence among specific modes of online classes without considering all modes of courses that are taught in actual settings(ex: in-person classes, blended classes etc.). According to a survey about the operation of undergraduate programs conducted by the MOE in April 2022, general universities offer face-to-face classes for 62% of their courses, online classes for 21%, and blended classes for 17% (MOE, 2022). Therefore, it is necessary to explore the learning presence according to the type of course delivery, including face-to-face classes, to provide practical implications for university operations.

Furthermore, there have been studies examining the academic performance according to the mode of course delivery (Kim, 2021; Milz, 2020; Veerasamy, 2022; Yen et al., 2018), and it has been proven that the variables related to the teacher's activities in online classes have a positive effect on academic performance (Doo et al., 2017; Kim et al., 2015; Kwon, 2011; Lee & Park, 2012). However, these studies did not considered all modes of courses that are conducted in reality. Therefore, in order to provide practical implications for academic administration, it is necessary to examine the academic performance according to various modes of course delivery by reflecting the reality.

On the other hand, when examining the learning presence and academic performance according to the modes of course delivery, it is necessary to consider the student's course satisfaction as a moderating variable. It has been shown that the mediation effect of the course satisfaction in the influence of teacher's instructional

activities on academic achievement(Ko & Choi, 2022), and it has been proven that the more positively students perceive the teacher's teaching ability (Im & Lim, 2016) or the quality of the class (Kim, 2021), the more static impact it has on academic achievement. In other words, it can be inferred that learning presence and academic performance do not simply change according to the mode of course delivery, but may vary depending on the student's course satisfaction with the course. Therefore, in order to provide practical implications for higher education, it is necessary to analyze learning presence and teaching performance by considering both the modes of course delivery and the course satisfaction. Accordingly, the research questions addressed in this study are as follows:

(1) Research Question 1: Do the learners' learning presence differ according to the mode of course delivery and the students' course satisfaction?

(2) Research Question 2: Do the learners' academic performance differ according to the mode of course delivery and the students' course satisfaction?

Backgrounds

Research on the Relationship between Mode of Course Delivery and Learning Presence

Due to COVID-19, classes in primary, secondary, and higher education institutions have shifted from in-person to non-face-to-face instruction, and this trend spread. As a result of the sudden shift to non-face-to-face instruction, the MOE provided guidance on the modes of classes including real-time two-way classes, content-based classes that use recorded lectures, and task-based classes that provide online assignments and feedback(MOE,2020). Universities have implemented various modes of non-face-to-face classes based on the modes provided by the MOE(Kim et al., 2021), and studies exploring the effectiveness and future

possibilities of online classes based on specific modes of online classes have been conducted (Ha et al., 2022).

The learning presence in the learning environment has been identified as an important factor in learners' immersion and academic performance, and studies have been conducted to explore the level of sense of presence depending on the specific type of class. In terms of the difference in the presence between real-time and non-real-time classes, some studies have found that all sub-factors were higher in real-time classes (Garamhand et al., 2022; Oh, 2021), while others have found that only cognitive presence was significantly higher in real-time classes than in non-real-time classes (Park & So, 2021), or that both cognitive and social presence were significantly higher in real-time classes (Ha et al., 2022). Additionally, a study by Shin & Um (2022) qualitatively analyzed the cognitive presence among elementary school students using reflective journals found that cognitive presence was higher in non-real-time classes than in real-time classes. Based on the previous studies, the difference in sense of presence depending on the mode of class has shown inconsistent results, and it is necessary for further research on the difference in the presence among the various modes of classes.

Non-real-time classes can be classified into content-based (video) and task-centered modes, and studies on the presence in these modes of classes are limited. Oh (2021) found that learners' cognitive, emotional, and social presence was significantly higher in content-based (video) classes than in task-centered classes, and a study by Shin & Um (2022) found that cognitive presence was highest in task-based classes, while emotional presence was highest in video lectures. Social presence was highest in task-based classes and lowest in video lectures. However, research on the learning presence in all of these modes of classes is still lacking.

Research on the Relationship between Teaching and the Sense of Learning Presence

Most research on learning presence has focused on analyzing the impact of

learning presence on academic performance (e.g., class satisfaction, academic performance, etc.) (Park & Yoo, 2014). Such research has shown that learning presence has a positive effect on course satisfaction and academic performance. In partially, studies have been conducted to explore how learning presence differs depending on the mode of course delivery, but it is difficult to assert that the different mode is a direct factor in the difference in learning.

However, research that identifies the factors that enhance learning presence and positively impact academic performance is relatively scarce. Some studies have suggested that learning presence can vary depending on the professor's teaching design, teaching methods, and classroom activities.

Learning presence can be enhanced when professors provide learners with clear learning objectives and topics, and when learners receive specific feedback and interact with their peers (Holster & Arend, 2012, as cited in Park & Soh, 2021). Also, the type of learning activities and individual experiences can interact to enhance learning presence (Kim et al., 2017). Moreover, instructional design that reflects interactive elements can increase learning presence in e-learning situations (Song, 2015).

Several studies have suggested that learner satisfaction with a professor's teaching activities can have an impact on learning presence. For example, Kim and Kang (2010) found that 'facilitation of content structuring'(a sub-factor of teaching presence) had a significant effect on cognitive and social presence, and 'facilitation of learning activity' had a positive effect on all sub-factors of learning presence. In addition, Park and Yoo (2014) suggested that professor-led feedback and discussion activities using social networking services can enhance student class satisfaction. Based on these studies, it can be inferred that learner satisfaction with a professor's teaching activities can have an impact on learning presence, but empirical study is necessary to confirm whether such activities actually have a positive effect on learning presence.

Research on the Relationship between Mode of Course Delivery and Academic Performance

Many studies have utilized variables such as learners' course satisfaction, academic achievement, and competence to measure academic performance. Research on course satisfaction in online environments (such as cyber universities, e-learning, and online class environments) has been conducted (Ha et al., 2022; Kim, 2021; Kwon, 2011), as well as research on academic performance (Kang, 2003; Kang, 2021; Kim, 2021; Kwon, 2011).

This study aims to explore academic performance according to the mode of course delivery. Rather than analyzing academic performance in a single type of face-to-face or online class, this study examines the relationship between academic performance and two or more modes of course delivery in online classes. Kang(2003) and Kang(2021) found that academic performance scores were significantly higher in real-time classes compared to non-real-time classes. Additionally, that academic performance in face-to-face classes was significantly higher than in real-time classes (Veerasingam, 2022). On the other hand, there are studies that have shown no difference in academic performance between non-real-time and real-time classes (Kim, 2021), or no significant difference in academic performance between face-to-face and e-learning classes (Milz, 2020), or no difference in academic performance between face-to-face, blended, and online classes (Yen et al, 2018).

Kang(2021) explored the relationship between academic performance and real-time class and content-centered class among 2nd grade middle school students. The results showed that academic performance improved more effectively as real-time classes were conducted. Kang(2003) analyzed differences in academic performance according to the type of real-time and non-real-time cyber class operation as supplementary classes to classroom teaching. As a result, the academic performance of students who took real-time classes was significantly higher than that of students in the non-real-time group, and the difference in achievement between high-level

self-regulated learning groups and low-level groups was also significant. On the other hand, Kim(2021) analyzed the difference in learning effects between video classes and real-time video classes, and the results showed no significant difference in learning effects between the two modes of course delivery. Milz(2020) found that there was no significant difference in final achievement between online and face-to-face classes taught by the same instructor in a university communication course. Yen et al(2018) also reported no significant difference in academic performance, including mid-term and final exam scores, among college students in face-to-face, blended, and online classes.

Based on the above studies, additional research is needed to provide insights into the impact of the mode of course delivery on academic performance as perceived by learners, which can contribute to determining the mode of course delivery in educational settings.

Research on the Relationship between Teaching and Academic Performance

In this study, the impact of teaching on the students' academic performance in various mode of courses is analyzed, this part cover the relationship between teaching and academic performance. Several studies have analyzed the effect of teaching on the performance through learners' perceptions of teaching presence (Doo et al., 2017; Ju et al., 2010; Kim et al., 2015; Kwon, 2011; Lee & Park, 2012; Song & Lee, 2013). Through the studies can infer the fact that teaching presence show a positive effect on the learners' academic performance.

Firstly, Doo et al.(2017) revealed through a meta-analysis that teaching presence in online classes had a positive impact on perceived academic performance . Kwon (2011) analyzed the relationship between teaching presence, which can be seen as learners' perception of teaching activities in online classes, and the learning effects. The measurement items of teaching presence in this analysis are similar to those of

course satisfaction items in this study, such as “the professor clearly explained the course objectives” and “the professor encouraged exploration of new concepts during the course.” The analysis showed that teaching presence has a positive effect on the learners’ perceived learning effects. Kim et al. (2015) revealed that systematically executed teaching activities, learning encouragement, and other items measured by teaching presence indirectly influenced perceived academic performance by mediating the e-learning readiness and learner participation. In the study by Lee and Park (2012), teaching presence, measured by systematic teaching, learning facilitation, and evaluation, had a positive impact on learning effects (perceived academic performance and satisfaction).

On the other hand, studies that examined the impact of teaching presence or teaching design and interaction on g.p.a(grade point average) showed no significant impact on academic performance. Doo et al. (2017) found that teaching presence had no significant impact on academic performance in online classes. Song and Lee (2013) examined teaching design variables, such as clear learning objectives set by the professor, and teaching interaction variables, such as professors’ feedback, in an e-learning liberal arts course and found no significant impact on academic performance. Lee and Park (2012) also found no significant effect of teaching presence on academic performance in a flipped classroom setting.

Methods

Participants

The data used for the analysis was collected by combining the same student response data from the Professor Learning Course Survey (NASEL) of the 2022 KEDI(Korea Educational Development Institute) and the survey from University D. The survey at University D was designed to verify the interaction between the mode

of course delivery and course satisfaction and consisted of questions regarding self-regulated learning ability, sense of learning presence, and mode of course delivery.

At first, 1,314 students participated in the NASEL and university D survey. Cases where students refused to provide their contact information, provided false information, incorrectly reported the mode of course delivery, or did not respond to the course satisfaction questions were excluded from the analysis. The variable for course satisfaction was based on the satisfaction questions for major classes at university D and cases where students did not take major classes in the 22-1 semester were excluded from the analysis. Ultimately, 897 response data were used for analysis.

Table 1
General Traits of the Participants

Category		Cases(N)	Percentage(%)
gender	Male	497	52.7
	Female	400	42.4
semester	1-2 semester	284	31.7
	3-4semester	212	23.6
	5-6semester	227	25.3
	7 semester above	174	19.4
mode of course delivery	face-to-face	37	4.1
	blended	800	89.2
	non face to face (e-learning)	60	6.7
Total		897	100

Variables and Measures

The variables used for the analysis are shown in Table 2. To control for the effect, the learners' variables such as gender, number of semesters enrolled, and self-regulated learning ability on learning presence, academic performance, self-regulated learning ability was measured using 11 items selected from the questions developed

by Kim et al.(2018) that were appropriate for the purpose of this analysis. These items measured using a 4-point scale. The mode of course delivery was categorized as face-to-face, blended, or e-learning (100% video) and students were asked to select one of the modes they experienced most in the 22-1 semester, and dummy coding was used for the variables. The reference variable for the dummy coding was set to face-to-face classes. Course satisfaction was measured by selecting items related to the instructor's class activities, such as the clarity of goals and activities, consistency between the class plan and actual class, and appropriate teaching methods, from the major course satisfaction questions of NASEL. Three items that were not directly related to class activities, such as fairness of evaluation and whether the class content was helpful for career competency, were excluded from the original items in NASEL. The variable, satisfaction with course, mean-centralized to reduce multicollinearity and ensure interpretational clarity. Therefore, in this analysis, the satisfaction with course was used as a standardized.

Table 2
Variables and Measures

Measures	Examples	Cronbach's α
Self-Regulated Learning Ability	▫ 11 items Ex: I reviewed after the class.	.868
Mode of Course Delivery	▫ face-to-face ▫ Blended ▫ Non-face-to-face(e-learning)	-
Satisfaction with Course(NASEL)	▫ 10 items about major class satisfaction Ex: Lecture objectives, students' task and activities are clarified.	.899
Learning Presence	▫ cognitive presence(8 items), social presence (10items), emotive items(7items)	.890
Academic performance(NASEL)	▫ The degree of ability enhance (ex: critical thinking, communication ability, problem-solving ability etc.)	.856

Statistical Analysis

To investigate how the relationship between course satisfaction and the two dependent variables (learning presence and teaching performance) differ according to the mode of course delivery, linear regression analysis was conducted. Prior to performing linear regression analysis, reliability analysis (Cronbach's α) and descriptive statistics were conducted on the items used in the analysis. Linear regression analysis was used for the analysis. Analysis was conducted separately for each dependent variable, learning presence and academic performance. In the first step, learner variables, mode of course delivery, and satisfaction with course (z-score) were included. In the second step, learner variables, mode of course delivery, satisfaction with class (z-score), and the interaction term between mode of course delivery and satisfaction with class activities were included [figure 1].

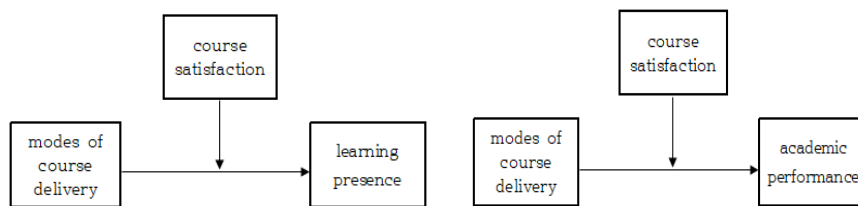


Figure 1. Research Model

Results

Descriptive Statistics

The descriptive statistics of this study are presented in Table 3. First, the mean of self-regulated learning ability for 897 learners at D University was 2.92 with a standard deviation of 0.562. The mean of satisfaction with course and the learning presence were relatively high, exceeding 3 points. The mean of satisfaction with

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course was 3.13 with a standard deviation of 0.477. The mean of learning presence was 3.03 with a standard deviation of 0.493, and the mean of the learners' perceived academic performance was 2.91 with a standard deviation of 0.599. Considering these items were 4points scale, this results can be regarded as not that low. The skewness and kurtosis of all variables were within acceptable ranges, indicating the validity of the data for analysis.

Table 3
The results of statistical analysis of the variables

Variables	<i>M</i>	<i>SD</i>	Skewedness	Kurtosis
Self-Regulated Learning Ability	2.92	0.562	-.152	-.041
Satisfaction on Class(NASEL)	3.13	0.477	-.278	.594
Learning Presence	3.03	0.493	-.247	.260
Teaching-Academic performance(NASEL)	2.91	0.599	-.508	.345

The Moderating Effect of Satisfaction with Course on the Relationship between the Modes of Course Delivery and Learning Presence

The results of verifying the moderating effect of satisfaction with course on the relationship between the modes and learning presence are presented in Table 4. Linear regression analysis was conducted to verify the moderating effect, and Model 1 considered learners' personal background variables, such as the number of semesters registered and self-regulated learning ability, as factors explaining the variance in learning presence. Model 1 and Model 2 verified how satisfaction with course and the mode of course delivery are related to learning presence. Model 2 included an interaction variable between satisfaction with course and the mode of course delivery.

Table 4
The Results of the first research question

Variables	Model 1				Model 2			
	<i>B</i>	β	<i>t</i>	<i>p</i>	<i>B</i>	β	<i>t</i>	<i>p</i>
	1.394	-	16.536	.000	1.393	-	16.606	.000
Gender	-.041	-.042	-1.940	.053	-.043	-.044	-2.063	.039
Semester	-.004	-.017	-.784	.433	-.004	-.017	-.808	.419
Self-Regulated ability	.600***	.689	30.040	.000	.598***	.688	30.093	.000
Satisfaction	.089***	.182	8.003	.000	.210***	.430	5.593	.000
Blended	.005	.003	.125	.900	.014	.009	.342	.733
E-learning	.023	.009	.357	.721	.017	.007	.256	.798
Satisfaction Blended					-.129***	-.247	-3.321	.001
Satisfaction E-learning					-.166***	-.077	-2.745	.006
<i>F</i>		225.085***				172.204***		
<i>R</i> ² (adj <i>R</i> ²)		.603(.600)				.608(.605)		

p*<.01, *p*<.001

As a result of the analysis, both Model 1 ($F=225.085$, $p<.001$) and Model 2 ($F=172.204$, $p<.001$) showed statistical significance, and the explanatory power of the regression model was 60.3% ($R^2=.603$) in Model 1 and 60.8% ($R^2=.608$) in Model 2. The significance test of the regression coefficients revealed that self-regulated learning ability ($B=.600$, $p<.001$) and satisfaction with course ($B=.089$, $p<.001$) were statically significantly associated with learning presence in Model 1. In Model 2, self-regulated learning ability ($B=.598$, $p<.001$) and satisfaction with course ($B=.210$, $p<.001$) were statically significantly associated with learning presence, but the interaction variable between satisfaction with course and the mode of course delivery was not significant (satisfaction with class \times blended learning: $B=-.129$, $p<.01$, satisfaction with course \times e-learning: $B=-.166$, $p<.01$). In other words, when

the satisfaction with course increased by 1 point, learning presence increased in all face-to-face, blended, and e-learning classes, but learning presence in blended classes increased only by 0.13 points compared to the reference variable, which is face-to-face classes.

The Moderating Effect of Satisfaction with Course on the Relationship between Mode of Course Delivery and Academic Performance

The moderating effect of satisfaction with course on the relationship between the course delivery modes and academic performance was examined while controlling for the learner's personal backgrounds and characteristic variables. The results are shown in Table 5. Linear regression analysis was conducted to verify the moderating effect, and in Model 1, the learner's registered semesters and self-regulated learning ability were controlled, and the impact of satisfaction with course and the modes on academic performance was examined. In Model 2, the interaction variable between satisfaction with course and course delivery modes was introduced.

As a result of the analysis, both Model 1 ($F=83.117, p<.001$) and Model 2 ($F=62.335, p<.001$) were statistically significant, and the explanatory power of the regression model was 35.9% ($R^2=.359$) in Model 1 and 36.0% ($R^2=.360$) in Model 2. The significance test of the regression coefficient showed that in Model 1, self-regulated learning ability ($B=.403, p<.001$) and satisfaction ($B=.208, p<.001$) had a significant static effect on academic performance. In Model 2, self-regulated learning ability ($B=.402, p<.001$) and satisfaction ($B=.242, p<.001$) also showed a significant static effect, but the moderating effect of satisfaction with course on the mode of course delivery and on the academic performance was not significant. This indicates that as the values of satisfaction with course and self-regulated learning ability increase, the academic performance would improve, but this tendency does not vary according to the mode of course delivery.

Table 5
The results of the second research question

Variables	Model 1				Model 2			
	<i>B</i>	β	<i>t</i>	<i>p</i>	<i>B</i>	β	<i>t</i>	<i>p</i>
Semester	.011	.043	1.574	.116	.011	.043	1.557	.120
Self-Regulated Ability	.403***	.378	12.969	.000	.402***	.377	12.898	.000
Satisfaction	.208***	.346	11.978	.000	.242***	.403	4.101	.000
Blended	-.032	-.017	-.497	.619	-.030	-.016	-.462	.644
E-Learning	-.080	-.027	-.789	.431	-.064	-.021	-.615	.539
Satisfaction x Blended					-.039	-.060	-.637	.524
Satisfaction x E-Learning					.006	.002	.067	.947
F		83.117***				62.335***		
R ² (adj R ²)		.359(.355)				.360(.354)		

****p*<.001

Discussion

This study investigated the moderating effect of course satisfaction on the relationship between the mode of course delivery and learning presence, as well as the relationship between the mode of course delivery and academic performance. First, the mode did not have a direct impact on the learning presence, but the moderating effect of course satisfaction on the relationship between the mode and learning presence, which was the first problem of this study, was found to be significant. In this study, ‘course satisfaction’ was composed of satisfaction with the professor’s ‘teaching activities’. Specifically, it was composed of satisfaction with teaching strategies and activities such as “appropriate methods were used for the contents” and “there was faithful feedback from the professor”. This is consistent with previous research that suggests that specific feedback from the professor

(Holster & Arend, 2012, as cited in Park & Soh, 2021) or the professor's social feedback had a significant effect on improving learning presence (Park & Kim, 2019). Therefore, it can be inferred that, since course satisfaction in this study was composed of satisfaction with teaching methods and activities, teaching strategies of the professor, such as feedback, would have had a moderating effect on improving learning presence, as in previous studies.

Meanwhile, the moderating effect of course satisfaction varied in the relationship between the mode of course delivery (face-to-face, blended, e-learning) and sense of classroom presence. When course satisfaction increased by one point, learning presence improved in the order of face-to-face, blended, and e-learning classes. This is consistent with previous studies that found that learning presence (Garamhand et al., 2022; Oh, 2021) or its subfactors (Ha et al., 2022; Park & Soh, 2021) was higher in real-time classes than in e-learning classes during the COVID-19 pandemic. Garamhand et al. (2022) and Oh (2021) reported that learning presence was higher in real-time classes than in e-learning classes, and in this study, the moderating effect of course satisfaction on learning presence was significantly higher in blended classes, which included real-time classes, than in e-learning classes. Further research is needed to determine the factors that led to these results in each mode of course, but it can be inferred that the sudden shift to non-face to face classes during the COVID-19 pandemic, which was carried out without preparation, resulted in the highest moderating effect of course satisfaction in face-to-face classes.

The moderating effect of course satisfaction on academic performance, which was the second research problem, was not significant. In this study, course satisfaction referred to satisfaction with the instructor's teaching activities which is similar with the notion of teaching presence, which had a positive effect on academic performance (Bae & Lee, 2021; Doo et al., 2017; Kim et al., 2015; Song & Lee, 2013). Previous studies have verified academic performance in only e-learning (Kim et al., 2015; Song & Lee, 2013) or blended learning (Bae & Lee, 2021; Doo et al., 2017), while this study compared all situations of face-to-face, blended learning, and e-

learning, which makes a difference. Besides, Veerasamy (2022) revealed a significant difference in academic performance according to the mode of course delivery, but it is difficult to conclude that it is due to the mode because it was analyzed only by t-test without controlling other variables(e.g. students' pre-ability).

On the other hand, it can be seen as consistent with previous studies (Kim, 2021; Milz, 2020; Yen et al., 2018) that found no difference in academic performance in all modes of course delivery. It can be inferred for these results: Because of the sudden change with COVID-19 in educational field, instructors had difficulties to redesigned their courses for the distance learning. Especially the variable of academic performance was set as the degree of competency increase in this study, it could not be organized in short period of time.

Based on the results of this study, it is necessary to improve course satisfaction by utilizing appropriate teaching strategies that fit the goals and methods of the class in any mode of course delivery, as learning presence improved when course satisfaction scores increased in all modes(face-to-face, blended, e-learning). Especially, in previous studies, it was revealed that feedback from instructors improves the sense of learning presence, and this item is also included in the course satisfaction in this study. Therefore, regardless of the mode of course delivery, it will be necessary to design appropriate feedback from instructors when designing classes. Additionally, there is a need of institutional support for the high-quality distance education, not just taking responsibility of only individual instructors(Jeong et al., 2020). Through this, efforts should be made to have a positive long-term impact on academic performance regardless of the form of teaching that students take.

Lastly, for the further research, it would be necessary to specify how and what makes the increase the learning presence in the mode of course delivery. For these, mixed-method research can be suggested. Through this, it will provide specific implications for the educators about the design of courses. In addition, a long-term verification of the effects of course satisfaction (or teaching activities of professors) on academic performance seems to be necessary.

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Sanghee KIM

Research Professor, Center for Teaching and Learning, Hansung University.

Interests: Instructional Design, Teaching Methods, Metaverse.

E-mail: kshow321@naver.com

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