



Emergent Online Teaching Effect on International Graduate Students' Academic Performance in Japan during COVID-19

Jiwon Jung^{1*}  <https://orcid.org/0000-0002-8353-212X>, Chun Yee Wong²

^{1,2}International University of Japan, Japan

e-mail: ^{1} jjung@iuj.ac.jp

Article Information

Received: December 30, 2022
Revised: February 04, 2023
Accepted: February 15, 2023
Online: March 06, 2023

Keywords

COVID-19 pandemic
international students
graduate schools
distance learning
emergent online learning
academic performance

ABSTRACT

International graduate students reluctantly partook in the distance learning with the closure of national borders with the outbreak of COVID-19. Different instructional modes (in-person, online, and hybrid) and timing of the online learning exposure would play a role in international students' academic achievement considering the expectations and motivations to learn abroad. Based on 267 course-based panel data, for the same courses, online-mode teaching yielded worse Grade Point Averages (GPAs) and less of a sense of class community compared to the in-person mode. Similarly, students who started the program after COVID-19 (i.e., Class of 2022) performed worse than those who changed their mode of study during their study due to COVID-19 (i.e., Class of 2021). The more frequent interactions with schoolmates and professors partially mediated this detrimental effect of international online learning. Online learning, on average, decreases the GPA by 0.2 standard deviations ($p < 0.05$). However, this effect became insignificant in the model with the frequency of interacting with classmates or professors that raise the GPA by 0.686 and 0.216 standard deviations ($p < 0.05$), respectively. As the study sheds light on the predicament of emergent distance learning, the study addresses some cautious notes on designing effective and sustainable international education in the post-pandemic era.

INTRODUCTION

With the outbreak of COVID-19 in early 2020 across the globe and continuous threats of new variants, "emergency" online learning for international students became inevitable. Furthermore, international students were especially vulnerable to the varying levels of pandemic control in different countries with the issues of international and domestic travel bans, restricted immigration process, quarantines and COVID-19 negative certificate required entering countries, and safety vulnerability in on-campus housing, to name a few. Therefore, attention is given to international graduate students worldwide and their experiences with different instructional modes before and during COVID-19. Under the circumstances of emergency online learning, international graduate students needed to direct, regulate, and motivate their learning in a short period (considering one- or two-year master's programs) without much of a supportive, collegial group, especially for those who begin their studies after the pandemic. Furthermore, for international students who need to consider immigration issues on top of the transition to online learning environments with time differences and adjustment to a new cultural

and educational environment, the pandemic requires them to be more vigilant and flexible. Therefore, distance learning of this type has different characteristics from a traditional distance or online learning in international education where the international students intend to immerse themselves in a foreign country by studying abroad ([Boardman et al., 2021](#); [Mittelmeier et al., 2021](#); [Watermeyer et al., 2021](#)). The disruption of education caused by the COVID pandemic has impacted international students severely, with campus closures pushing students out of dormitories or making them unable to work part-time at school, so they lose their financial sources ([Hari et al., 2021](#); [Hastings et al., 2021](#)). Other critical issues are related to immigration, including being unable to enter the country to study due to border closure and slow visa process for incoming students (for instance, see [Nakamura \(2022\)](#) for Japan; [Oladipo \(2021\)](#) and [Spagat \(2021\)](#) for the United States; or ABC News [2021] for Australia), uncertainties about the visa status of the students and their families, and the career prospects ([Spagat, 2021](#)).

Recent studies investigating the effect of the pandemic on university students' learning experiences reported its negative consequences on students' perceived learning in different dimensions ([Aguilera-Hermida, 2020](#); [Boardman et al., 2021](#); [Teodorescu et al., 2021](#)). For instance, undergraduate students reported less motivation and more procrastination ([Boardman et al., 2021](#)); similarly, lower interest and enthusiasm ([Aguilera-Hermida, 2020](#)). However, few scholars have examined the effects of emergent distance learning on students' actual performance (e.g., course grade), which might differ from students' subjective performance or experience. The current research, therefore, aims to measure the tangible educational impacts of different instructional modes (traditional in-person, online, and hybrid modes). More specifically, this study applies the grade point averages (GPAs) as the measure of the student's academic performance since it is the most commonly used measure of tertiary academic performance, and GPA is a relatively objective, internally reliable, and stable educational measurement ([Bacon and Bean, 2006](#)).

This study highlights commonalities with prior literature by demonstrating that online distance learning affects students' perceived sense of connectedness and learning effectiveness ([Boardman et al., 2021](#)). In addition, past studies have pointed out the challenges of emergent online learning, including ineffective use of online instructional tools and materials ([Teodorescu et al., 2021](#); [Watermeyer et al., 2021](#)), issues with technology ([Maatuk et al., 2021](#)), and level and quality of feedback ([Boardman et al., 2021](#); [Li et al., 2020](#)), suggesting that they would result in a less effective education or lack of student performance relative to a traditional form of teaching. Adding to this knowledge, the tests this speculation on students' learning experiences and grade point averages (GPAs) earned that capture pre-pandemic and pandemic periods. Additionally, during the mild smoothing-out period of the positive cases and hospitalization of COVID-19 in each country, the hybrid mode of teaching, which is run for offline and online students simultaneously, was introduced in higher education institutions ([Wood, 2021](#)). Given the prevalence of three different instructional modes, the study aims to examine the differential effect of in-person, synchronous hybrid, and synchronous online instructional modes on students' academic performance and sense of class community. We expect that the change of learning mode from in-person to online-based may exhibit a different effect on the students, depending on the timing of the interruption during their study. Examining international graduate students from more than 30 countries across the world who are studying in one of the Japanese private universities, the study further examines the buffering effect of institutional support from students' personal life, workplace, and academic community to identify the ways to address better the potential instability in international education caused by the pandemic. The study aims to bring needed discussion among educators and administrators to prepare international students with adequate help in sustainable distance online learning, such as building an academic support community that connects students with other classmates, seniors, lecturers, and academic administrators.

Effect of Instructional Modes on International Students' Learning Effectiveness and Environment *Online learning versus traditional learning mode: Student performance*

Past literature has found that students may perform as well in an online environment as their counterparts in a traditional classroom, as measured by the scores on the weekly quizzes ([Lyke & Frank, 2012](#)) or the course grade ([Ni, 2013](#)) and the content-based exam ([Holmes & Reid, 2017](#)). On the other hand, [Callister & Love \(2016\)](#) found that in-person students had higher skill-based outcomes (e.g.,

negotiation) than online learners even when using the same technology. An opposite result was found where online students outperformed the in-person students in a human resource management course ([Lapsley et al., 2008](#)) and a science course ([Schoenfeld-Tacher et al., 2001](#)).

The studies of different instructional modes have had mixed results, perhaps because each method highlights different student learning dimensions. For instance, graduate students in the traditional setting of in-class learning were more satisfied with the clarity of instruction, while those in the blended-learning section (learning online for content knowledge and meeting in class occasionally for discussion) felt more strongly that they had improved their analytical skills ([Chen & Jones, 2007](#)). Therefore, researchers considered other factors such as student motivation, engagement, interactions, and assistive technology to disentangle the effects of the instructional modes.

Online learning versus traditional learning mode: Instructor-student interactions

Many scholars have tried identifying the factors associated with students' learning satisfaction and outcomes. For instance, [Baber \(2020\)](#) identified that interaction in the online classroom, student motivation, logical and understandable course structure, and perceived instructor knowledge and facilitation positively influenced students' perceived learning outcomes and satisfaction with their online learning during the pandemic. The findings are consistent with the existing literature on online and distance learning concerning instructor-learner interactions, student satisfaction, and student learning outcomes ([Ku et al., 2013](#); [Moore, 2002](#)). Furthermore, even if students felt more disconnected in online teaching mode ([Otter et al., 2013](#)), instructors' proactive facilitation of discussion, not only between instructor and students but also among students, and the social presence of the instructor can enhance the online learning quality ([Jones, 2006](#); [Ladyshevsky, 2013](#)).

In studies of emergent online learning, students felt less connected to their peers and more connected to their professors compared to the face-to-face mode ([Boardman et al., 2021](#)). It is perhaps due to the instructors being the only major source of interaction in the online learning mode, while there is a narrow channel to interact with their peers both in and outside the online classroom. In particular, many students believed face-to-face interaction was essential for building a sense of class community ([Conole et al., 2008](#)), enhancing their opportunities to succeed in a course ([Rovai and Jordan, 2004](#)). However, [Schoenfeld-Tacher and colleagues \(2001\)](#) found that online learning improved outcomes and increased interactions in-class sessions, even without as much prompting as in lecture sessions. It demonstrates that face-to-face contact does not automatically foster interpersonal interactions and a sense of bonding between students and instructors, questioning the experiences of international students during emergent distant learning.

The sense of class community for international students

The sense of community has long been found to affect how college students engage with classmates and are motivated to perform better in class ([Epp et al., 2020](#); [McMillan and Chavis, 1986](#); [Rovai & Jordan, 2004](#)). It highlights that some students may be unable to focus on their work or feel that a course is less important than others because they do not feel like they are part of a community for learning together ([Conole et al., 2008](#)). The sense of community is rooted in belonging and relating to other group members, a sense of influence on the group, correspondence of needs, and emotional connection ([McMillan and Chavis, 1986](#)). It may be critical for international graduate students to be motivated to study abroad by interacting with local people and other international students inside and outside the classroom ([Varela, 2017](#); [Mittelmeier et al., 2021](#)).

Furthermore, the sense of community might be an important factor to examine in the learning process of the pandemic era because of the physical isolation and lockdown during the pandemic leading to higher levels of loneliness, isolation, and negative mental health ([Drelich-Zbroja et al., 2021](#); [Hari et al., 2021](#)), lowering self-reported academic performance. While the community has often been described in spatial terms, [Rovai \(2002\)](#) argued that a sense of community among learners is characterized by spirit, trust, interaction, and shared expectations and goals, which becomes more significant in the effectiveness of distance international education ([Mittelmeier et al., 2021](#)). The sense of class community may differ by the instructional mode students are exposed. In face-to-face interactions, there is often an initial phase of introductions and getting to know one another, during which those perceived as attractive or socially competent have an advantage over others. Hence,

forming a sense of belonging to a community is a process in which others actively participate. Unless active measures are taken in the online learning setting under the online/hybrid modes, opportunities to build relationships are significantly lacking, particularly for students with different socio-demographic and cultural backgrounds. (Rovai & Jordan, 2004). Without such opportunities, shifting to an emergent online learning mode may have a more detrimental effect on international students by escalating their sense of disconnectedness (McInnerney & Roberts, 2004).

For international students, when and how emergent online learning is experienced is crucial to understand the sense of community but is often overlooked. That is, international students suffering from the change of learning mode during the spread of COVID-19 may still enjoy the sense of community they built earlier in their degree program, while such sense may be lacking for those who started the program after online learning was implemented. Another challenge that remote international students have to face is navigating time differences. This study hypothesizes that the timing of the interruption and forced engagement in online learning during their graduate study have differential effects on students' perceived sense of class community and academic performance. More specifically, the incoming students who had to start taking courses online and then moved to hybrid or in-person classrooms may experience a lesser extent of the perceived sense of community and suffer in their academic performance than the existing students who were exposed to a traditional pedagogy of in-person learning and then suddenly moved to online learning.

METHODS

The Sample

The graduate students attending the sampled Japanese private university came from about 30 different countries (ranging from Southeast Asian countries, soviet republics, Europe, and Africa to the United States), and they were asked to share their learning experiences in their first year of study at their graduate school. All students are in the master's degree program in a social science field, and most are professional students with previous work experience. The survey was undertaken in June 2021, and lottery incentives of a meal coupon that amounts to 1,500 yen (about \$13) were provided to the students to increase student participation (Coryn et al., 2020). The total number of international graduate students in the degree programs was 276, and 199 responded to the survey, for a 72% response rate. After we removed observations with missing data, 183 students remained in our data analysis (about 48% were the Class of 2021, and 52% were the Class of 2022).

Given that COVID-19 impacted the Class of 2021 (i.e., the second-year student at the time of the survey) in the middle of their study in the master's program, they experienced the normal teaching mode (i.e., face-to-face class) and then moved to the emergent online teaching, and later to the hybrid mode. On the other hand, the Class of 2022 started their master's degree program in the fall of 2020 amid the pandemic. Therefore, most first-year students at the time of the survey (i.e., Class of 2022) were exposed to online distance teaching before they could sit in the classroom. Each student answered the questions concerning their studies for a particular course in one or two semesters, resulting in 267 effective observations.

COVID-19 response in Japanese universities

In Japan, the pandemic spread became more prevalent starting in February 2020, and on February 28, 2020, the Ministry of Education, Culture, Sports, Science, and Technology requested all universities in Japan to take care of such occasions flexibly. Japan closed the border for both visa holders and tourists as of March 21, 2020, with the closure continuing until the end of October, making new incoming students (i.e., the Class of 2022) unable to enter Japan for their study. For the sampled Japanese university, from March 2020 to December 2020, classes were mostly offered online (synchronous) only, particularly the required courses for each degree program.

From September 1, 2020, to January 14, 2021, the Japanese government lifted reentry restrictions for foreign residents and partly allowed the new entry of foreign non-residents. However, based on the rapid increase in COVID-19 diagnoses, Japan again suspended the entry of all non-resident foreign nationals in mid-January 2021 until the end of February 2022. As a result, 70% of international students in the Class of 2022 were on campus by the end of January, while the remaining 30% were still in their home countries, taking courses via Zoom in either online-only or hybrid courses.

Data Collection

Both first- and second-year master-level international students were asked to share their learning experiences in their first year of study at their graduate school. Therefore, the Class of 2021 (second-year students at the time of the survey) were surveyed for the courses they took in fall 2019–spring 2020, and the Class of 2022 (first-year students at the time of the survey) were surveyed for the courses they took in fall 2020–spring 2021. The questionnaire design had the same question benchmark except for the changes in the instructional mode between the academic years 2019–20 and 2020–21. That way, we could control for the potential noise of the students' having different experiences in different courses, where the nature of the course, the instructor's teaching style, or other characteristics could bias the results. Therefore, for each semester, students were asked to think about the specific required course they need to take in each program (e.g., Applied Statistics and Financial Accounting for MBA students, Microeconomics II and Statistical Methods for economics students, Managing Public Organizations and Statistical Methods for MPA students) and to provide their experiences in these courses. Of the students' 267 course observations, 37% were for courses taken via the face-to-face instructional mode, and 75% were for courses taken via the online mode. Among the 75% of the observations of online classes, 10% were hybrid-mode classes.

Measurement

Instructional mode

Students were asked to identify which type of instructional mode they had for the specific courses they had taken among (1) face-to-face only, (2) online only, (3) hybrid, but taken face-to-face (hereafter "hybrid (face-to-face)"), and (4) hybrid, but taken online (hereafter "hybrid (online)"). Since the school had administrative information about how each course was taught and when students arrived on campus, this question validated the students' correct knowledge of the instructional mode. In our analysis, we combined (1) face-to-face only and (3) hybrid (face-to-face) to capture the effect of the face-to-face instructional mode, leading to the comparison of three different types of instructional modes: face-to-face, online-only, and hybrid (online). As some students were not able to take in-person classes because of government-sanctioned social distancing measures and the border closure, we also examined the residential status of the students and those who were on campus did take in-person or hybrid (face-to-face) courses unless the instructor decided to offer the course online only. Therefore, we did not expect to see a selection bias with the instructional modes to which the students were exposed.

Student performance: Term grade point average

Our key outcome variable is students' term grade point averages (GPAs), which measure students' academic performance. The descriptive statistics of the variables are presented in Table 1. The average term GPA of our sample was 3.38 out of 4.0. To facilitate a unit-free interpretation of the change in term GPA, we divided the term GPA by its standard deviation and generated a variable called TGPAsd. This variable measures the term GPA in terms of standard deviation and is treated as the dependent variable in the regressions (see Table 1).

Perceived sense of community

To measure the sense of class community, we adopted the Classroom Community Scale (CCS) developed by [Rovai \(2002\)](#). The CCS is composed of two subscales: connectedness and learning (10 items each), where the connectedness dimension captures feelings of belonging, shared values, and emotional and intellectual connection, and the learning dimension identifies whether a classroom is perceived as a community with the common goal of learning, including incorporating the interactions of both faculty and students. All of these questions were on a 5-point Likert scale. Cronbach's coefficient for the overall items was 0.89, with connectedness and learning items having 0.83, respectively ([Epp et al., 2020](#); [Rovai & Jordan, 2004](#)).

Frequency of interaction with supporting communities

The graduate students were also asked to indicate how often they communicated with different groups personally and at school during the given semester. We have measured the frequency of

interactions for each major group – classmates, professors, school administrations, and personal friends and family – respectively. Also, we have measured the general pattern of students’ interactions with other people as an overall measure of active interactions with their supporting communities. The frequency scale ranged from 1 to 5, where one never indicates, two indicates once or twice per semester, three every other week, four at least once a week, and five more than twice weekly.

Table 1. Descriptive Statistics

Variable	Obs	Mean	S.D.	Min	Max
Term GPA	267	3.38	0.44	0	4
TGPAsd (term GPA in terms of std. dev.)	267	8.19	1.07	0	9.7
Face-to-face	267	0.37	0.48	0	1
Online	267	0.75	0.43	0	1
Hybrid (via Zoom)	267	0.10	0.30	0	1
Perceived sense of community	267	3.24	0.91	0	4.9
Frequency of interacting with the supporting community	236	3.82	0.74	1	5
Age	267	32.05	4.71	22	42
Female	267	0.47	0.50	0	1
Married	267	0.47	0.50	0	1
Number of children	267	0.15	0.55	0	3

Note. Obs = observations; GPA = grade point average; S.D. = standard deviation.

REGRESSION ANALYSIS RESULTS

The students provided data concerning one or two courses in different semesters; therefore, the collected data is a panel dataset, and hence we had to deal with the individual fixed effects that may affect the outcome variables. We, therefore, conducted both fixed-effects (FE) and random-effects (RE) estimations and performed the Hausman test to verify whether it was legitimate to apply RE models. The results of Hausman tests in most regressions supported using RE models, as most p values were above 10%, displayed at the bottom of each results table.

Timing of the experience of emergent online learning

Firstly, mean difference tests were examined to see whether the timing of the emergent online learning has impacted students differently, as hypothesized. Comparing the required courses taken in their first year of the programs, second-year students (those who have experienced the pandemic during their study) performed better in terms of their GPA. Also, it perceived more of a sense of class community and experienced fewer academic-related challenges than first-year students who started their master’s program via Zoom (see Table 2). Despite a propensity toward grade inflation during the pandemic ([Karadag, 2021](#); [Martin, 2022](#)), the average grade for the same required courses for graduate students was statistically different and inferior for first-year students.

Table 2. The Mean Differences in Academic Performance, Perceived Sense of Community, and Extent of Challenges Experienced Among First-Year and Second-Year Students

Variable	First-year students (Class of 2022)	Second-year students (Class of 2021)	Mean difference
TGPAsd (term GPA in terms of std. dev.)	7.98 (1.13)	8.69 (0.69)	-0.71***
Perceived sense of community	3.36 (0.51)	3.52 (0.64)	-0.16**
The extent of the challenge faced ¹⁾	2.18 (0.69)	1.69 (0.58)	0.49***
Variable	Online/Hybrid mode	Face-to-face mode	Mean difference
TGPAsd	8.07 (1.20)	8.40 (0.76)	-0.33**

(term GPA in terms of std. dev.)			
Perceived sense of community	3.36 (0.52)	3.49 (0.61)	-0.13*
The extent of the challenge faced ¹⁾	2.17 (0.71)	1.79 (0.61)	0.39***

Standard deviation in parentheses. ***, **, * denote significance at 1%, 5%, and 10%, respectively.

¹⁾ The extent of the challenge faced: We have asked students whether they have experienced any academic-related challenges during their studies. Such as “weekly topics or materials were difficult for me,” “Learning in English was difficult for me,” “It was difficult to access learning materials,” and “I had physical distractions at home/ office/ classroom/ school (e.g., in the place I took the course),” and “It was mentally difficult to stay focused during the class or in completing assignments.” We have counted how many items students have chosen as the experienced challenges. The detailed aspects of this surveyed item are not investigated in this paper. Similar findings were observed when comparing online and face-to-face courses (see Table 2). Students who took courses online or hybrid (online) performed worse than face-to-face. Online-participating students were also less likely to perceive a sense of class community. However, personal effects must be considered to control for unobserved heterogeneity among students that may affect whether the coefficients can be estimated precisely.

The direct effect of different instructional modes

Tables 3 and 4 present the estimated effects of the three teaching modes, face-to-face, online-only, and hybrid (online), on students’ term GPA and perceived sense of community, respectively.

Table 3. Effects of Teaching Modes, Perceived Sense of Community, and Frequency of Interaction on Term GPA

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	FE	RE	RE with controls	FE	RE	RE with controls	FE	RE	RE with controls
Face-to-face	0.346** (0.134)	0.294*** (0.095)	0.304*** (0.097)						
Online				-0.308** (0.132)	-0.217** (0.090)	-0.221** (0.093)	-0.304** (0.133)	-0.193** (0.091)	-0.200** (0.095)
Hybrid (via Zoom)							-0.076 (0.173)	-0.279* (0.145)	-0.248* (0.149)
Perceived sense of community	0.127 (0.178)	0.238** (0.098)	0.209** (0.097)	0.145 (0.178)	0.247** (0.099)	0.219** (0.098)	0.145 (0.177)	0.238** (0.098)	0.212** (0.096)
Frequency of interaction	0.079 (0.208)	-0.022 (0.077)	-0.032 (0.076)	0.09 (0.205)	-0.009 (0.076)	-0.016 (0.074)	0.09 (0.205)	-0.005 (0.076)	-0.012 (0.075)
<i>Major:</i>									
<i>Economics</i>			0.132 (0.184)			0.147 (0.186)			0.126 (0.186)
<i>International relations</i>			0.187 (0.220)			0.162 (0.222)			0.164 (0.221)
<i>Public management</i>			-0.01 (0.194)			-0.012 (0.195)			-0.016 (0.193)
Age			-0.003 (0.017)			-0.001 (0.018)			-0.001 (0.017)
Female			0.187 (0.136)			0.168 (0.137)			0.166 (0.135)
Married			-0.314* (0.168)			-0.321* (0.168)			-0.323* (0.166)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	FE	RE	RE with controls	FE	RE	RE with controls	FE	RE	RE with controls
No. of kids			0.356** (0.092)			0.359** (0.092)			0.352** (0.091)
Constant	7.502** (0.712)	7.407** (0.398)	7.551** (0.601)	7.777** (0.758)	7.630** (0.416)	7.715** (0.607)	7.779** (0.756)	7.654** (0.411)	7.734** (0.601)
N	244	244	244	244	244	244	244	244	244
Hausman test (FE vs RE)									
p-value	0.6955			0.4215			0.1907		

Note: Standard errors, clustering within each student, are in parentheses. ***, **, * denote significance at 1%, 5%, and 10%, respectively. The Hausman test is performed using homoskedastic standard errors. GPA = grade point average; FE = fixed-effect model; RE =random-effect model.

Table 3 indicates that the students who took a face-to-face course are likely to receive higher term GPAs by around 0.3 standard deviations. In contrast, the online instructional mode (i.e., online-only or hybrid (online)) reduced the term GPA by around 0.2 standard deviations on average. Columns 7–9 present the estimation results of comparing the effects of different instruction modes. The results reveal that taking online courses via Zoom in hybrid instructional mode has a slightly more negative impact on the term GPA than the online-only course (i.e., -0.20 versus -0.25 standard deviation, see Column 9) though this difference is statistically insignificant. Unlike previous findings in a meta-analysis that showed hybrid learning environments yield stronger learning outcomes than purely face-to-face teaching (Means et al., 2010), the current study proposed an opposite effect of the hybrid instructional mode. As “hybrid” instruction can take different forms, directly comparing past empirical studies is difficult. The hybrid mode in this study was where there are students in physical classrooms with the instructor while online students join via Zoom, looking at the camera shot of the classroom and sharing the screen with the instructor (i.e., synchronous hybrid instruction). Previous findings highlighting the benefits of hybrid mode (Means et al., 2010) cover a broader instructional design involving online sessions (i.e., asynchronous) and in-person sessions where students all meet to discuss what they learned online. As shown in Column 9 of Table 3, we have found a consistent finding of a positive relationship between a sense of class community and student performance (b=0.212, p<0.05) (Epp et al., 2020; McMillan and Chavis, 1986; Rovai & Jordan, 2004). Considering the perceived sense of community, student’s academic performance, in general, is lower for the hybrid (online) class, as they might be demotivated working alone on the online platform, looking at their classmates’ and instructors’ interactions in a physical classroom through the camera.

Table 4. Effects of Teaching Modes on The Perceived Sense of Community

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	FE	RE	RE with controls	FE	RE	RE with controls	FE	RE	RE with controls
Face-to-face	0.116 (0.104)	0.140* (0.072)	0.145** (0.073)						
Online				-0.081 (0.102)	-0.152* (0.078)	-0.151* (0.080)	-0.082 (0.103)	-0.139* (0.079)	-0.139* (0.080)
Hybrid (via Zoom)							0.012 (0.132)	-0.154 (0.109)	-0.145 (0.116)
<i>Major:</i>									
<i>Economics</i>			0.117 (0.107)			0.127 (0.107)			0.113 (0.108)
<i>International Relations</i>			0.239** (0.116)			0.235** (0.114)			0.234** (0.113)
<i>Public Management</i>			0.061			0.065			0.062

	(1) FE	(2) RE	(3) RE with controls	(4) FE	(5) RE	(6) RE with controls	(7) FE	(8) RE	(9) RE with controls
Age			(0.108) 0.000			(0.107) 0.001			(0.107) 0.001
Female			(0.010) 0.134*			(0.010) 0.125			(0.010) 0.124
Married			(0.080) 0.032			(0.080) 0.030			(0.079) 0.027
No. of kids			(0.086) 0.023			(0.087) 0.025			(0.087) 0.021
Constant	3.365*** (0.038)	3.366*** (0.044)	3.187*** (0.317)	3.469*** (0.076)	3.534*** (0.072)	3.324*** (0.308)	3.468*** (0.077)	3.537*** (0.072)	3.322*** (0.307)
N	267	267	267	267	267	267	267	267	267
Hausman test (FE vs RE)									
<i>p</i> -value	0.7320			0.2521			0.1569		

Notes: Standard errors, clustering within each student, are in parentheses. ***, **, * denote significance at 1%, 5%, and 10%, respectively. The Hausman test is performed using homoskedastic standard errors. FE = fixed-effect model; RE = random-effect model.

Concerning the perceived sense of community, the results in Table 4 indicate that the face-to-face teaching mode significantly positively impacts students' perceived sense of community. In contrast, students from online-only courses had less sense of class community than those taking face-to-face courses. Column 9 shows that compared to taking online-only courses, taking courses via hybrid (online) mode has no significant impact on students' perceived sense of community ($b = -0.145, p > 0.1$), which implies that providing a hybrid learning mode to online students does not help reduce the adverse effects from online learning.

The role of supporting communities in mitigating the negative effect of online courses

As shown in Table 5, the negative effect of the online-only mode became insignificant after controlling for the frequency of interacting with others. However, even if the students engage more with different supporting communities, joining online in a hybrid course could not compensate for the negative effect of taking an online course while some other students were learning in a physical class, interacting face-to-face. Interactions with supporting communities nullified the positive effect of the perceived sense of community on academic performance, as shown in Column 9 of Table 5. However, once the students' interactions with supporting communities were included in the empirical model, the negative effect of taking hybrid courses on term GPA was even slightly increased from $b = -0.248 (0.194, p < .05)$ to $b = -0.273 (0.155, p < .05)$ (see Column 9 from Table 3 and Table 5, respectively). Across the different groups, students interact more frequently with classmates and seniors, and professors are more likely to perform better while interacting more with personal friends is negatively correlated with academic performance.

Table 5. Mediating Effect of Interactions with Supporting Communities in The Relationship Between Online Learning and Term GPA

	(1) FE	(2) RE	(3) RE with controls	(4) FE	(5) RE	(6) RE with controls	(7) FE	(8) RE	(9) RE with controls
Face-to-face	0.221 (0.153)	0.204** (0.099)	0.216** (0.100)						
Online				-0.179 (0.146)	-0.141 (0.089)	-0.148 (0.091)	-0.168 (0.147)	-0.114 (0.090)	-0.123 (0.093)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	FE	RE	RE with controls	FE	RE	RE with controls	FE	RE	RE with controls
Hybrid (via Zoom)							-0.104 (0.172)	-0.298** (0.152)	-0.273* (0.155)
Perceived sense of community	0.078 (0.173)	0.119 (0.103)	0.094 (0.102)	0.087 (0.174)	0.116 (0.105)	0.092 (0.104)	0.089 (0.171)	0.105 (0.102)	0.082 (0.101)
<i>Frequency of interacting with others</i>									
Overall	0.265 (0.654)	-1.090** (0.471)	-1.092** (0.485)	0.299 (0.647)	-1.086** (0.474)	-1.088** (0.487)	0.322 (0.647)	-1.064** (0.484)	-1.073** (0.492)
Classmates and academic colleagues	-0.167 (0.378)	0.682** (0.271)	0.676** (0.280)	-0.164 (0.376)	0.694** (0.274)	0.688** (0.281)	-0.169 (0.375)	0.687** (0.277)	0.686** (0.282)
Professors (e.g., instructors, supervisors)	0.184 (0.137)	0.204** (0.079)	0.205** (0.085)	0.179 (0.137)	0.212** (0.080)	0.217** (0.085)	0.173 (0.138)	0.213** (0.081)	0.216** (0.086)
Personal community (friends, family)	-0.197 (0.182)	0.114 (0.135)	0.117 (0.137)	-0.221 (0.179)	0.1 (0.134)	0.103 (0.135)	-0.233 (0.181)	0.091 (0.137)	0.096 (0.137)
<i>Major:</i>									
Economics			0.089 (0.186)			0.098 (0.188)			0.074 (0.188)
International Relations			0.165 (0.212)			0.143 (0.214)			0.144 (0.213)
Public management			-0.003 (0.186)			-0.005 (0.185)			-0.009 (0.184)
Age			-0.001 (0.017)			0.001 (0.017)			0.001 (0.017)
Female			0.166 (0.134)			0.156 (0.135)			0.155 (0.132)
Married			-0.342** (0.166)			-0.346** (0.166)			-0.348** (0.163)
No. of kids			0.363** (0.087)			0.364** (0.088)			0.356** (0.087)
Constant	7.645** (0.677)	7.825** (0.396)	7.884** (0.596)	7.813** (0.712)	7.993** (0.402)	8.016** (0.600)	7.810** (0.707)	8.020** (0.395)	8.036** (0.594)
N	244	244	244	244	244	244	244	244	244
Hausman test (FE vs RE)									
p-value	0.1236			0.1085			0.0997		

Notes: Standard errors, clustering within each student, are in parentheses. ***, **, * denote significance at 1%, 5%, and 10%, respectively. The Hausman test is performed using homoskedastic standard errors.

DISCUSSION

The current study found that the face-to-face instructional mode yielded better academic performance for international graduate students, particularly at the outset of the pandemic, compared with the online or hybrid instructional mode. However, consistent across different models tested, students taking hybrid courses online suffered the most, particularly in their academic performance. This finding confirms the stories we read from many surveys- and interview-based studies during the pandemic about how emergent online learning has negatively influenced students' perceived learning effectiveness, satisfaction, or motivation with more nuances. We can attribute the negative impact of online-based classes during the pandemic to several factors. One might be the students' mental health,

lack of connectedness, lower motivation, irregular sleeping patterns, and particularly the time difference for the international students taking classes from their home country. One recent study on brain science found that the fully online study mode negatively impacts students' mental health ([Drelich-Zbroja et al., 2021](#)), perhaps leading to lower academic performance relative to the students taking in-person classes. We also believe that the critical harm of the online instruction mode might be more apparent among international students who intend to study abroad (i.e., the harm of "emergent" online learning). Especially for the master-level students whose degree program is only 1 to 2 years, such uncertainties and barriers in their learning environment may lower their motivation or even discourage them from learning, leading to a lower term GPA.

Moreover, online students may be further demotivated if their classmates are engaged in a physical classroom lamenting their inability to travel abroad. Nonetheless, the uncertainties in immigration issues, the lack of immersive learning on the physical campus, and deep cognitive engagement with classmates may lead students to give up when facing challenges or difficulties more easily ([Dupeyrat & Mariné, 2005](#)). The findings shed some light on the initial purpose of international education: the current study may find a more detrimental effect of online and hybrid learning because the purpose of international education (i.e., learning abroad) has not been fulfilled with the emergent change of learning at a distance (while some students could still manage entering in Japan). Such a misfit between intention and practice may lead to this negative result and may not be transferable to the distance education initially planned as learning at a distance.

We found a consistent result with previous literature that the perceived sense of class community positively influences academic performance. Furthermore, online instructional mode leads to less sense of class community, and conducting the classes in hybrid mode cannot help reduce this adverse effect on online students. This finding raises concerns about how the online learning experience can be improved given that hybrid or online mode is an inevitable choice in higher education, with the risk of COVID-19 becoming endemic, and distance teaching and learning may continue in the following months or years ([Murphy, 2020](#)). In addition, other factors (such as frequency of interactions with classmates or professors) that influence the sense of community need to be further examined to address better how international students who are exposed to the emergent online learning mode can be better supported in their academic performance ([Rovai, 2002](#)). One of the noteworthy findings of the current study is that the frequency of interactions in academic environments (with other fellow students from their own country or with foreign countries and professors) enhances academic performance as well as nullifies the negative effect of the online instruction mode during the pandemic for international students. The finding resonates with another study in which students commented on their higher education experiences during the pandemic ([Boardman et al., 2021](#)): it is important to have normal conversations with the professors to feel the connections, rather than professors focusing on the class materials only. Given that the frequent interactions with the students' communities (e.g., family and friends) were not beneficial but detrimental in explaining higher academic performance, finding the balance between academic deliberation and mental comfort during the pandemic seems critical to academic excellence. Being able to interact with people in the same academic setting more frequently is the key aspect that the instructors and administrative staff need to pay attention to support the students' best academic outcomes.

Despite these findings, the study has some limitations, such as asking about students' experiences in a retrospective way, which affects the quality of the responses being highly contingent on the recall accuracy of the respondent. However, we benchmarked the specific courses that students had to take each semester in their first year, such that at least we prompted students to have an objective mark and minimized the cognitive effort associated with the retrospective questions ([Hipp et al., 2020](#); [Krosnick, 1991](#)). Furthermore, the limited sample size of international students experiencing changes in the instructional modes over time was insufficient to yield more robust multivariate analyses, limiting our ability to understand the relationship between such change and other mitigating factors to recommend firm actions. Effective education for international students may have been stalled either by a reluctant choice because the international border was closed or the campus was closed or by students' voluntary choice to stay in their home country for health safety, which has dragged on for more than two years. This study evaluates how the different instructional strategies used and developed during the two years of the pandemic have been operating. The study highlights commonalities with prior literature on

COVID-19-related instructional issues and distance and online learning literature by demonstrating that online distance learning affects students' learning effectiveness. Finally, the study adds knowledge to this literature by investigating how the three different instructional modes are related to the student's academic performance as measured by their GPA rather than the subjective assessment of students and the mitigating factor to address the negative effect of taking online courses—that is, more interactions with school communities such as classmates, seniors, and professors.

CONCLUSION

The study contributes to the literature on international education of higher education. Also, it focused on a context that other studies have rarely addressed—graduate students who began experiencing online education for the first time during the pandemic versus graduate students who had to change their mode of learning in the middle of the degree program—although this is just an initial step in examining the effect of the timing of the exposure and its relevance to learning effectiveness. Future studies can further examine this aspect to understand better how the timing of the exposure to the emergent distance learning mode has shaped students' learning behaviors, cognitive processing ability, learning effectiveness, and interpersonal interaction patterns in higher educational institutions. The studies are gaining more attention in children and adolescents adjustment and development to the COVID-19 pandemic experience.

Funding and Conflicts of Interest

The authors declare no funding and conflicts of interest for this research.

REFERENCES

- ABC News. (2021, October 18). When is international travel to and from Australia allowed? Can non-residents enter the country?. *ABC News*. https://www.abc.net.au/news/2021-10-18/international-travel-overseas-australia-border-when-rules/100546986?utm_campaign=abc_news_web&utm_content=link&utm_medium=content_shared&utm_source=abc_news_web
- Aguilera-Hermida, A. P. (2020). College students' use and acceptance of emergency online learning due to COVID-19. *International Journal of Educational Research Open*, 1, 100011. <https://www.sciencedirect.com/science/article/pii/S266637402030011X>
- Baber, H. (2020). Determinants of students' perceived learning outcome and satisfaction in online learning during the pandemic of COVID-19. *Journal of Education and E-Learning Research*, 7(3), 285-292. <https://files.eric.ed.gov/fulltext/EJ1264743.pdf>
- Bacon, D. R., & Bean, B. (2006). GPA in research studies: An invaluable but neglected opportunity. *Journal of Marketing Education*, 28(1), 35-42. <https://doi.org/10.1177/0273475305284638>
- Boardman, K. L., Vargas, S. A., Cotler, J. L., & Burshteyn, D. (2021). Effects of emergency online learning during COVID-19 pandemic on student performance and connectedness. *Information Systems Education Journal*, 19(4), 23-36. <https://files.eric.ed.gov/fulltext/EJ1310048.pdf>
- Callister, R. R., & Love, M. S. (2016). A comparison of learning outcomes in skills-based courses: Online versus face-to-face formats. *Decision Sciences Journal of Innovative Education*, 14(2), 243-256. <https://doi.org/10.1111/dsji.12093>
- Chen, C. C., & Jones, K. T. (2007). Blended learning vs. traditional classroom settings: Assessing effectiveness and student perceptions in an MBA accounting course. *Journal of Educators Online*, 4(1), 1-15. <https://files.eric.ed.gov/fulltext/EJ907743.pdf>
- Conole, G., De Laat, M., Dillon, T., & Darby, J. (2008). 'Disruptive technologies,' 'pedagogical innovation': What's new? Findings from an in-depth study of students' use and perception of technology. *Computers & Education*, 50(2), 511-524. <https://doi.org/10.1016/j.compedu.2007.09.009>
- Coryn, C. L., Becho, L. W., Westine, C. D., Mateu, P. F., Abu-Obaid, R. N., Hobson, K. A., ... & Ramlow, M. (2020). Material incentives and other potential factors associated with response rates to

Internet surveys of American Evaluation Association members: Findings from a randomized experiment. *American Journal of Evaluation*, 41(2), 277-296.

<https://doi.org/10.1177/1098214018818371>

- Crawford, J., Butler-Henderson, K., Rudolph, J., & Glowatz, M. (2020). COVID-19: 20 countries' higher education intra-period digital pedagogy responses. *Journal of Applied Teaching and Learning*, 3(1). <https://doi.org/10.37074/jalt.2020.3.1.7>
- Drelich-Zbroja, A., Jamroz-Wiśniewska, A., Kuczyńska, M., Zbroja, M., Cyranka, W., Drelich, K., ... & Markiewicz, K. (2021). The impact of study mode (online vs. hybrid) on early symptoms of depression and coping strategies among university students in Poland in time of COVID-19 pandemic—Preliminary study. *Brain Sciences*, 11(12), 1578. <https://www.mdpi.com/article/10.3390/brainsci11121578>
- Dupeyrat, C., & Mariné, C. (2005). Implicit theories of intelligence, goal orientation, cognitive engagement, and achievement: A test of Dweck's model with returning to school adults. *Contemporary Educational Psychology*, 30(1), 43-59. <https://doi.org/10.1016/j.cedpsych.2004.01.007>
- Epp, C. D., Phirangee, K., Hewitt, J., & Perfetti, C. A. (2020). Learning management system and course influences on student actions and learning experiences. *Educational Technology Research and Development*, 68(6), 3263-3297. <https://link.springer.com/article/10.1007/s11423-020-09821-1>
- Hastings, C., Ramia, G., Wilson, S., Mitchell, E., & Morris, A. (2021). Precarity Before and During the Pandemic: International Student Employment and Personal Finances in Australia. *Journal of Studies in International Education*. Online First. <https://doi.org/10.1177/10283153211065136>
- Hari, A., Nardon, L., & Zhang, H. (2021). A transnational lens into international student experiences of the COVID-19 pandemic. *Global Networks*. 1-17. <https://doi.org/10.1111/glob.12332>
- Hipp, L., Bünning, M., Munnes, S., & Sauermann, A. (2020). Problems and pitfalls of retrospective survey questions in COVID-19 studies. In *Survey Research Methods* (Vol. 14, No. 2, pp. 109-1145). Konstanz, Germany: European Survey Research Association. <https://doi.org/10.18148/srm/2020.v14i2.7741>
- Holmes, C. M., & Reid, C. (2017). A comparison study of on-campus and online learning outcomes for a research methods course. *The Journal of Counselor Preparation and Supervision*, 9(2), 1-24. <https://digitalcommons.sacredheart.edu/jcps/vol9/iss2/15/>
- Johnson, N., Veletsianos, G., & Seaman, J. (2020). U.S. faculty and administrators' experiences and approaches in the early weeks of the COVID-19 pandemic. *Online Learning*, 24(2), 6-21. <https://doi.org/10.24059/olj.v24i2.2285>
- Jones, S. (2006). Evaluation of instructor knowledge on structuring and facilitating effective online discourse. *The Journal of Educators Online*, 3(2), 1-14. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=348190e0108ee2818490719db2063459b8fdefb7>
- Karadag, E. (2021). Effect of COVID-19 pandemic on grade inflation in higher education in Turkey. *PLoS One*, 16(8), e0256688. <https://doi.org/10.1371/journal.pone.0256688>.
- Krosnick, J. A. (1991). Response strategies for coping with the cognitive demands of attitude measures in surveys. *Applied Cognitive Psychology*, 5(3), 213-236 <https://doi.org/10.1002/acp.2350050305>
- Ku, H.-Y., Tseng, H. W., & Akarasriworn, C. (2013). Collaboration factors, teamwork satisfaction, and student attitudes toward online collaborative learning. *Computers in Human Behavior*, 29(3), 922-929. <https://doi.org/10.1016/j.chb.2012.12.019>

- Ladyshevsky, R. (2013). Instructor presence in online courses and student satisfaction. *The International Journal for the Scholarship of Teaching and Learning*, 7(1), 1–23.
https://espace.curtin.edu.au/bitstream/handle/20.500.11937/38589/196651_100519_Instructor_Presence_Ladyshevsky.pdf?sequence=2
- Lapsley, R., Kulik, B., Moody, R., & Arbaugh, J. B. (2008). Is identical really identical? An investigation of equivalency theory and online learning. *Journal of Educators Online*, 5(1), 1–19.
<https://files.eric.ed.gov/fulltext/EJ904041.pdf>
- Li, J., Wong, S. C., Yang, X., & Bell, A. (2020). Using feedback to promote student participation in online learning programs: Evidence from a quasi-experimental study. *Educational Technology Research and Development*, 68(1), 485–510.
<https://link.springer.com/article/10.1007/s11423-019-09709-9>
- Lyke, J., & Frank, M. (2012). Comparison of student learning outcomes in online and traditional classroom environments in a psychology course. *Journal of Instructional Psychology*, 39(4), 245–250.
<https://search.proquest.com/openview/6fe020f26d1d048af8e32f7f4036c296/1?pq-origsite=gscholar&cbl=48173>
- Maatuk, A. M., Elberkawi, E. K., Aljawarneh, S., Rashaideh, H., & Alharbi, H. (2021). The COVID-19 pandemic and e-learning: Challenges and opportunities from the perspective of students and instructors. *Journal of Computing in Higher Education*, 1–18.
<https://doi.org/10.1007/s12528-021-09274-2>
- Di Malta, G., Bond, J., Conroy, D., Smith, K., & Moller, N. (2022). Distance education students' mental health, connectedness and academic performance during COVID-19: A mixed-methods study. *Distance Education*, 43(1), 97–118. <https://doi.org/10.1080/01587919.2022.2029352>
- Martin, H. (2022, January 25). Pandemic grade inflation fears as number of first-class degrees awarded to university students rises to 36% from 14% in 2010, *Daily Mail*, retrieved April 12, 2022 from <https://www.dailymail.co.uk/news/article-10439723/Number-class-degrees-awarded-university-students-rises-36-14-2010.html>.
- McInnerney, J. M., & Roberts, T. S. (2004). Online learning: Social interaction and the creation of a sense of community. *Journal of Educational Technology & Society*, 7(3), 73–81.
<https://www.jstor.org/stable/jeductechsoci.7.3.73>
- McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology*, 14(1), 6–23. [https://doi.org/10.1002/1520-6629\(198601\)14:1%3C6::AID-JCOP2290140103%3E3.0.CO;2-I](https://doi.org/10.1002/1520-6629(198601)14:1%3C6::AID-JCOP2290140103%3E3.0.CO;2-I)
- McMurtrie, J. C., & Ostrikov, K. (2021). Hybrid participation options to mitigate discrimination and maximise productivity in post-COVID higher education and research workplaces. *Physical and Engineering Sciences in Medicine*, 44(2), 339.
<https://link.springer.com/article/10.1007/s13246-021-01017-y>
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). Education evaluation of evidence-based practices in online learning: a meta-analysis and review of online learning studies. US Department of Education, Office of Planning, Evaluation, and Policy Development.
<https://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>
- Merola, R. H., Coelen, R. J., Hofman, W. H. A., & Jansen, E. P. W. A. (2022). Through the Looking Glass: How the COVID-19 Pandemic Changed International Branch Campuses' Academic Experience and Home Campus Relationship. *Journal of Studies in International Education. Online First*.
<https://doi.org/10.1177/10283153211070112>
- Moore, M. G. (2002). Editorial, what does research say about the learners using computer-mediated communication in distance learning? *The American Journal of Distance Education*, 16(2), 61–64. https://doi.org/10.1207/S15389286AJDE1602_1

- Mittelmeier, J., Rienties, B., Gunter, A., & Raghuram, P. (2021). Conceptualizing Internationalization at a Distance: A “Third Category” of University Internationalization. *Journal of Studies in International Education*, 25(3), 266–282. <https://doi.org/10.1177/1028315320906176>
- Murphy. (2020). COVID-19 and emergency eLearning: Consequences of the securitization of higher education for post-pandemic pedagogy. *Contemporary Security Policy*, 41, 492–505. <https://doi.org/10.1080/13523260.2020.1761749>
- Nakamura, K. (2022, February 10). Foreign students begin to lose patience with Japan's COVID-19 entry ban. *The Japan Times*. Retrieved from <https://www.japantimes.co.jp/news/2022/02/10/national/foreign-students-entry-ban/>.
- Ni, A. Y. (2013). Comparing the effectiveness of classroom and online learning: Teaching research methods. *Journal of Public Affairs Education*, 19(2), 199–215. <https://doi.org/10.1080/15236803.2013.12001730>
- Oladipo, D. (2021, August 23). Classes starting, but international students failing to get U.S. visas. *Reuters*. Retrieved from <https://www.reuters.com/world/us/classes-starting-international-students-failing-get-us-visas-2021-08-23/>
- Otter, R. R., Seipel, S., Graeff, T., Alexander, B., Boraiko, C., Gray, J., ... & Sadler, K. (2013). Comparing student and faculty perceptions of online and traditional courses. *The Internet and Higher Education*, 19(4), 27–35. <https://doi.org/10.1016/j.iheduc.2013.08.001>
- Rovai, A. P. (2002). Development of an instrument to measure classroom community. *The Internet and Higher Education*, 5(3), 197–211. [https://doi.org/10.1016/S1096-7516\(02\)00102-1](https://doi.org/10.1016/S1096-7516(02)00102-1)
- Rovai, A. P., & Jordan, H. M. (2004). Blended learning and sense of community: A comparative analysis with traditional and fully online graduate courses. *International Review of Research in Open and Distributed Learning*, 5(2), 1–13. <https://doi.org/10.19173/irrodl.v5i2.192>
- Schoenfeld-Tacher, R., McConnell, S., & Graham, M. (2001). Do no harm—A comparison of the effects of online vs. traditional delivery media on a science course. *Journal of Science Education and Technology*, 10(3), 257–265. https://www.researchgate.net/profile/Regina-Schoenfeld-Tacher/publication/226718433_Do_No_Harm-A_Comparison_of_the_Effects_of_On-Line_vs_Traditional_Delivery_Media_on_a_Science_Course/links/0c960525dc0de22d550000/Do-No-Harm-A-Comparison-of-the-Effects-of-On-Line-vs-Traditional-Delivery-Media-on-a-Science-Course.pdf
- Spagat, E. (2021, January 1). Trump extends COVID-related bans on visas, green cards; court clears health insurance requirement for immigrants. *USA Today*. Retrieved from <https://www.usatoday.com/story/news/politics/2021/01/01/trump-extends-visa-bans/4107279001/>
- Teodorescu, D., Aivaz, K. A., & Amalfi, A. (2021). Factors affecting motivation in online courses during the COVID-19 pandemic: the experiences of students at a Romanian public university. *European Journal of Higher Education*, 1–18. <https://doi.org/10.1080/21568235.2021.1972024>
- Varela, O. E. (2017). Learning outcomes of study-abroad programs: A meta-analysis. *Academy of Management Learning & Education*, 16(4), 531–561. <https://doi.org/10.5465/amle.2015.0250>
- Waterhouse, P., Samra, R., & Lucassen, M. (2022). Distance education students' satisfaction: Do work and family roles matter?. *Distance Education*, 43(1), 56–77. <https://doi.org/10.1080/01587919.2021.2020622>
- Watermeyer, R., Crick, T., Knight, C., & Goodall, J. (2021). COVID-19 and digital disruption in UK universities: Afflictions and affordances of emergency online migration. *Higher Education*, 81(3), 623–641. <https://link.springer.com/article/10.1007/s10734-020-00561-y>



Copyright © Jiwon Jung, et al.

INTERNATIONAL JOURNAL OF ASIAN EDUCATION, Vol. 4, No. 1, March 2023

Wood, S. (2021, December 13). Hybrid classes in college: What to know. *U.S. News*. Retrieved from <https://www.usnews.com/education/articles/hybrid-classes-in-college-what-to-know>.