Study of University Education in COVID-19:
Considering Future Lectures Based on Survey Results

Mayumi Hori, Chuo University, Japan

Abstract

COVID-19, which is longer than expected, has a great negative impact on our society and life. We are restricted in our actions and many restaurants and businesses are bankrupt. The unemployed are also accelerating. In the field of education as well, various restrictions were imposed, and we had no choice but to change to a method of continuing education with the personal safety of students and faculty members as the top priority. Since face-to-face lectures were common in Japan, education at universities was also restricted, and we had to change to online lectures in a hurry. The faculty are struggling to prepare for online lectures and create teaching materials that they are not accustomed to. Even with the gradual progress of vaccination, the end of COVID-19 has not been expected, and we are in a situation where we have no choice but to continue online lectures. The author's university conducted the questionnaire survey of online lectures from students. The purpose of this survey is to understand the current situation of students at online classes and to improve the next classes more effectively. The survey's implementation period was February 25-March 17, 2021, the target was undergraduate students, and the number of respondents was 5,703 (Ratio of respondents to the survey subjects: 23.2%). In this paper, the author will introduce the results of the survey and will consider how to improve the future education with pandemic based on this survey result.

Keywords: Online Class, Hybrid Class, Face to Face Class, COVID-19, Pandemic

Introduction

COVID-19 has changed the world dramatically. Nobody imagines the unprecedented pandemic. As the number of infected people still increases and the medical system crisis becomes more serious, the lockdown and many restrictions are strengthened in most countries and regions. As a result, economic activities are severely restricted and have a serious impact on our lives. Even in the field of education, it has a great negative influence. Under such circumstances, most of universities are switching to online classes around the world. About two years have passed since the pandemic has been terrorized the world. Though the vaccination rate is gradually increasing, it has not been effective yet. We have nothing to do with the emergence of new Omicron. Who could have predicted such a protracted negative influence? We have a mission to understand the current situation and issues of education to continue providing education even during such a pandemic.

1.Situation of Class Implementation and Class Type during Pandemic

1-1. Overview of Class Implementation in Japan

According to the survey (Ministry of Education, Culture, Sports, Science and Technology Japan, Survey for Class Implementation Status at Universities during COVID-19, June,2020) which 1,069 universities responded. During pandemic, 1,069 universities did not postpone classes and continued classes (Figure1). As for class type, hybrid is 60.1%, online is 23.8%, and Face to Face is 16.2%(Figure2).

Figure1 Class Implementation Status

Type	Class implementation	Class postpone/ interruption
National University	86 schools (100%)	NIL
Public University	102 schools (100%)	NIL
Private University	824 schools (100%)	NIL
National Institute of Technical College[1]	57 schools (100%)	NIL
Total	1069 schools (100%)	NIL

Source: Ministry of Education, Culture, Sports, Science and Technology Japan, Survey for Class Implementation Status at Universities during COVID-19,2020, https://www.mext.go.jp/content/20200717-mxt_kouhou01-000004520_2.pdf

---

[1] National Institute of Technical College is a higher education institution that aims to train practical and creative engineers. There are 57 national, public and private schools nationwide, and a total of about 60,000 students are studying for 5 years.

Figure 2 Class Type

Type	Face to Face	Hybrid	Online
National University	1 schools(1.2%)	55 schools(64.0%)	30 schools(34.9%)
Public University	8 schools(7.8%)	72 schools(70.6%)	22 schools(21.6%)
Private University	145 schools(17.6%)	492 schools(59.7%)	187 schools(22.7%)
National Institute of Technical College	19 schools(33.3%)	23 schools(40.4%)	15 schools(26.7%)
Total	173 schools(16.2%)	642 schools(60.1%)	254 schools(23.8%)

Source: Same as Figure1

Japanese education system has mainly focused on face-to-face classes on campus until now. Most of professors and students have never experienced online. We had to prepare for online classes in a short time for this pandemic. Unlike the face-to-face classes, online classes are required new knowledge and skills to provide more effective classes. It is necessary to look back after experiencing online classes for the first time so that we can provide the effective online classes not only for the pandemic but also for the normal times referencing to the evaluations from students. Even with the gradual progress of vaccination, the end of COVID-19 has not been seen with new mutant strains and we are in a situation where we have no choice but to continue hybrid or online classes.

1-2. Class Type and Method for Grade Evaluation at Chuo University

Our university instructed 4 class types during COVID-19.
1) Interactive class: Professors and students are connected via the Internet in real time with audio (Face to Face or Hybrid).
2) Video distributed class: Professors provide a video recording lesson and ask questions or discuss by email or the web educational support system by Chuo provided.
3) Material distributed class: Professors provide lecture's materials (PowerPoint, PDF etc.) and questions and discuss by email or the web educational support system by Chuo provided.
4) Self-study class: Focusing on self-study and exercises using textbooks and others.

Our university instructed 4 specific methods for the grade evaluation during COVID-19. We can choose one of them or mix these methods by ourselves after notifying the students in advance.
1) Final report
2) Normal score including reports and quizzes after each class
3) Online test (60 minutes, and 45 minutes for language class)
4) Other and any combination

2. Result of the Survey of Online Class from Students

Chuo university conducted the survey of online class from students. The survey implementation guidelines are as follows.

-Implementation period: July 24-August 17,2021 for Spring semester 2021
-Purpose: To grasp the situation of students by online class in the spring semester and use the results as a reference for the next semester.
-Target: Undergraduate students
- Total number of answers: 5,703
  Ratio of respondents to the survey subjects: 23.2% (13.2% in the previous term)

In this chapter, the author will extract the results that have changed significantly from the previous survey: learning outcome, satisfaction, percentage of participation, advantage and disadvantage.

-Learning outcome:
Q. How about the results of your own learning by online or hybrid class?
Learning outcome by online or hybrid class is about10% up from the previous survey (The previous result 47.1% to this survey result 57.3%) (Figure3).
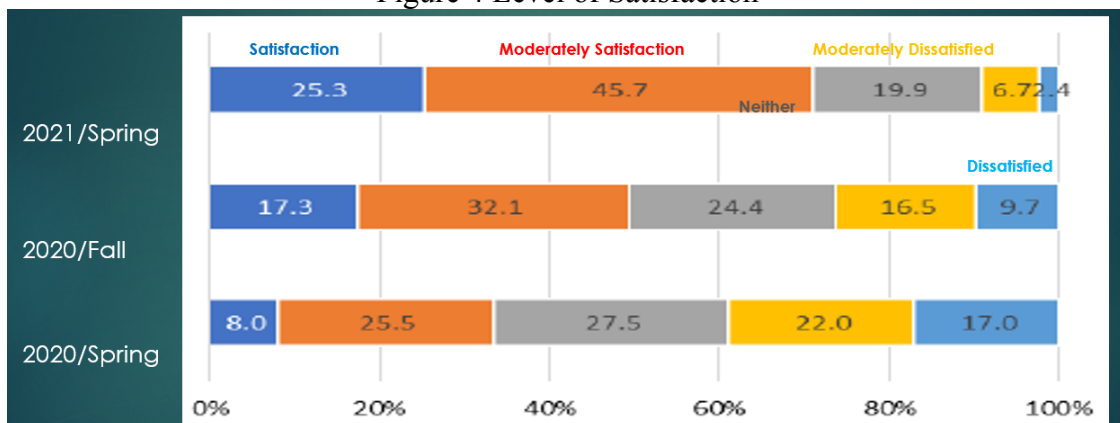
Figure 3 Learning Outcome by Online/Hybrid
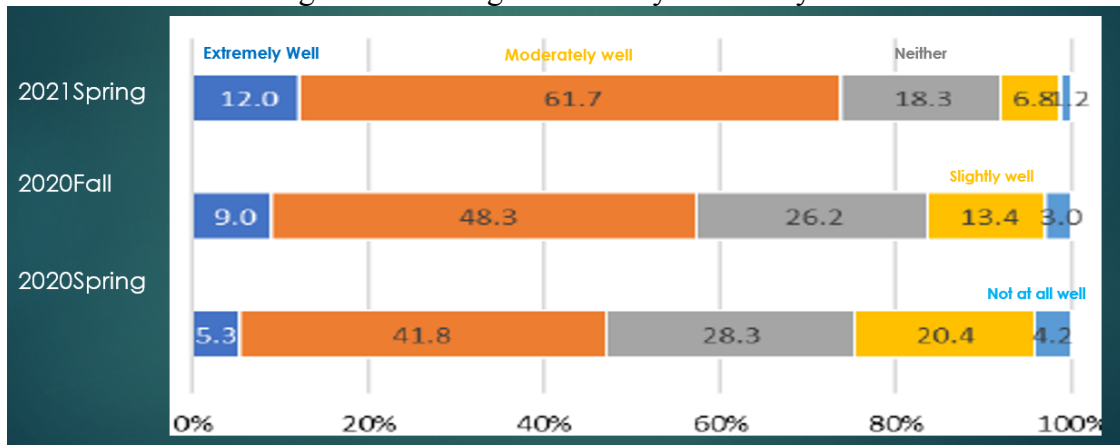
Source: Questionnaire Survey about Online Class, Chuo University,2021

-Level of satisfaction:
Q. How satisfied are you with online or hybrid class?
The total answers of "Satisfaction" and "Moderately Satisfaction" are about 15% up.
(33.5% → 49.4%) (Figure 4)

Figure 4 Level of Satisfaction

Source: Same as Figure 3

-Participation class:
Q. What class did you participate? (Figure 5)
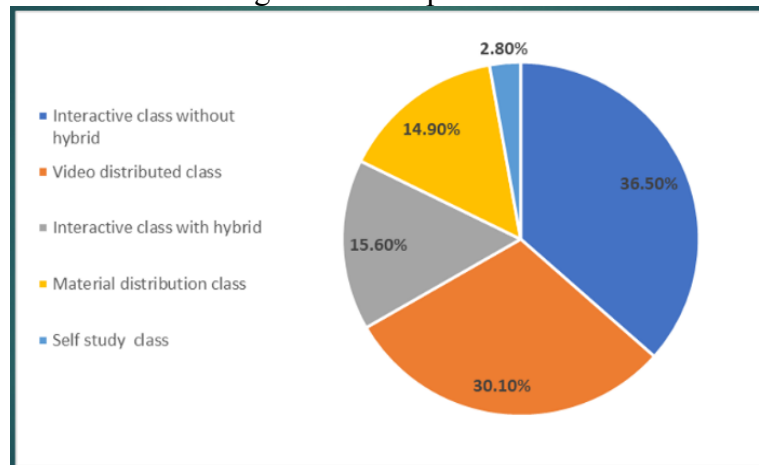
Interactive class without hybrid:36.50%
Video distributed class:30.10%
Interactive class with hybrid:15.60%
Material distribution class:14.90%

Self study class:2.80%

Figure 5 Participate Class

Source: Same as Figure 3

-Advantages of hybrid class by face-to face class:
Q. What are the advantages of hybrid class by face-to-face class? (multiple answers)
Interaction with students in the classroom:54.9%
Ease of participation in class:45.2%
Interaction with faculty members:42.4%
Interaction with friends before and after class:39.4%

-Advantages of hybrid class by online class:
Q. What are the advantages of hybrid class by online? (multiple answers)
Time effectively:64.5%
Easy to participate:59.5%
Safety:45.6%
Understanding deeply of class content:14.0%

-Disadvantages of hybrid class:
Q. What are the disadvantages of hybrid class by face-to face and online class? (multiple comments)
-The progress of classes has slowed down and become worse.
-Some students had to wait a long time for improving the environment of PCs and solving the problems.
-It was difficult to communicate at the online class.
-Questions are ignored.
-There was a difference in the burden of assignments and experiments between online and face-to-face.

-Most satisfied class during pandemic:
Q. Which class was the most satisfying?
Interactive class without hybrid:36.5%
Video distributed class:30.1%
Interactive class with hybrid:15.6%
Material distribution class:14.9%
Self-study:2.8%

-Desirable class:
Q. What class do you want to join?
The percentage of students who wanted face-to-face class has increased from the previous term, and the other hand, 20% students want all online classes same as the previous.

-Advantage of online class (top 6, multiple choice answers):
Less time burden:85%
Participate at home:70%
Study at own pace:60%
Less financial burden:39%
Less physical burden:38%
Easy to review: 31%

-Disadvantage of online class (top 6, multiple choice answers):
Difficult deepen understanding:41%
Psychological burden:40%
Difficult to ask questions:40%
Difficult to make good environment for studying: 39%
Less opportunity to speak: 36%
Lack of knowledge about equipment and tools:20%

-Disadvantage of online class (comments)
-Feel isolate due to lack of interacting with friends
-Physical pain (eyes, etc.)
-Difficult to ask questions
-Lack of response and feedback from professors
-Many assignments
-Feel long time and lack of concentration

3. Consideration: Issue and how online class should be in preparation for future pandemic

We will point out the issue and consider how online class should be in preparation for future pandemic from the questionnaire survey. The mission of university is to prepare class from anywhere and anytime if students would like to study. There are many students who want face-face-class. On the other hand, online class with hybrid will be expected to become indispensable option in the future even if this pandemic will be over. The positive opinions are received regarding online classes, and the learning outcome and satisfaction are higher than the previous survey results. We suppose that there are a certain number of students who feel the significance of online class. Because the percentage of advantage for online classes increased in all items. On the contrary, regarding the disadvantage, the ratio decreased in all items. These results mean we experienced hybrid class for two years and gradually became more effectively. There are many students who are satisfied the video distributed class. The reason is that they can take it at their convenient day and time and can use time effectively.

The first advantage of the hybrid class by face-to-face class is interaction with students in the classroom. This shows that it is important for students to interact with other students at campus. On the other hand, the first advantage of hybrid class by online is Time. From these results clearly shows that students get the different advantages depending on the location of each class.

Online class often causes a lack of communication. It is possible to set a break time, quiz and chat between professors and students, or between students and students during class. We will take a break time as a place for free interaction. It is possible to provide a place for interaction with other students through Project Based Learning (PBL) in online class. PBL is essential even if the number of students is large in some way. The presence of a facilitator is the key for PBL. Facilitators, unlike ordinary moderators are required to have the ability to understand students' opinions and organize them in an easy-to-understand for group members. As we need to find this facilitator among the students, so the first group work will be to work in roster order or in any group from the work or the report to be submitted by students, we will select a facilitator for each group at a next grouping. When targeting a large number of students, communication will be insufficient. As a small-group class actively can incorporates hybrid class, there is a great merit taking PBL at face-to-face class. It is also useful for making relationships between students, so it may be worthwhile to actively incorporate hybrid class, especially for freshmen.

It is important for online class to take full advantage of the Internet. Online class is not passive one. The key is to incorporate what can be done on the Internet into class. Online class can be provided online company tours, online social tours, guest speakers from all over the world, and interact with overseas students which are not possible by face-to-face class. As for improving the environment for attendance, it is required to confirm the internet environment of all students. In case of connection trouble, the manual and the Information and Communication Center at universities should response promptly at any time. It may also be necessary to record a class for students who cannot connect.

Some students point as one of disadvantages that there are too many assignments at online class. The assignment should be positioned as the degree of understanding of the lecture that does not burden the students. At the beginning of class, it will be essential to review the previous class and set a question time before the end of class.

Let's consider the effects of online class. At first, the author will introduce an overview of Japanese working format. Until now, most of Japanese companies have worked by only face-to-face. Telework has made an appearance in the1980s in Japan, however Telework was not a popular working style before this pandemic. Face to face communication is highly valued in Japanese culture, thus working in the office with colleagues is regarded as the best working format and environment. But we were forced to work by Telework in this pandemic.

We did not have a sense of crisis about pandemics and did not assume a response to it. Most of Japanese universities have similarly neglected to take measures against pandemic. Until now, most of Japanese universities have only provided face-to-face class. However, after encountering this pandemic, we have to reconsider university class format and our working format. Online class will be the first step and good opportunity to learn how to work by telework after graduation. The spread of online class also leads to the spread of Telework in Japanese society.

4.Conclusion

While we can't see the end of this pandemic, university education needs to provide more diverse learning. Various promotion and issues have been revealed from the survey results. The promotion of hybrid class and method will maximize the advantage of the Internet. Even after the end of this pandemic, we suppose online with hybrid class can be one of the useful

class formats in order to prepare for not only future pandemic but also for Japanese society. Unfortunately, the author is very disappointed that most of Japanese universities are going to revert from online class to previous face-to-face class. If company has never experienced Telework, it can't do successful by telework at emergency as pandemic and other natural disaster. This is the same as class format. It is necessary to prepare a system that can continue class no matter what happens at any time by providing hybrid class from normal time. Continuing mutual coexistence between face-to-face class and hybrid class which students and professors can choose by themselves will be required for any future pandemic and society.

References

Chuo University (2021/2020), *Questionnaire Survey about Online Class*, (not publish)

Hori,M(2017),*Business Communication-Global Human Resources and Business Proficiency Development-*,Chuo University Publishing,Tokyo,pp.144-146

Hori,M.(2007),*New Working Format Model: e-Work in Web 2.0 Era-Collaborative Telework as Knowledge-Creation-,*Proceedings of International Conference on Ethical and Social Impact of ICT(ETHICOMP),pp.249-256

Hori,M.(2003),*Society of Telework and Working for Women*, Chuo University Publishing,Tokyo,pp.49-52

Ohashi,M & Hori,M.edt.,(2005),*The Theory of Economics for Network Society*, Kinokuniya Co.Ltd., Tokyo, pp.116-123

Ohashi,M., Sasaki,K., & Hori,M.(2004) ,*On the Study of Knowledge Structualization and Adaptive Process Based on Project Based Learning*, Journal of Policy Studies Vol.11,The institution of Policy and Cultural Studies, Chuo University, Tokyo,pp55-78

Ministry of Education, Culture, Sports, Science and Technology Japan (2020), *Survey for Class Implementation Status at Universities during COVID-19* https://www.mext.go.jp/content/20200717-mxt_kouhou01-000004520_2.pdf