

# An Empirical Study on the Learning Situation of Students Taking Online Classes

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## SUMMARY

*The purpose of this study is to clarify the learning situation of students taking online classes. There are some methods of online classes. But each method had its disadvantages. Among them, the method considered to be the best at the moment is for the teacher to live-stream lectures on time and check students' conditions. However, in the case of practical training classes which require direct instruction from teachers, distributed schooling is recommended. In addition, students' dissatisfaction with the school is thought to arise from the lack of human interaction. Office hours which allow students to interact with each other outside of school hours will be able to reduce the anxiety of students.*

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## I. FOREWORD

The year 2020 must be remembered as one of the most turbulent years ever. In January, the Ministry of Health, Labour and Welfare (MHLW) issued the notification titled "Pneumonia of unknown cause in Wuhan city, Hubei Province of

the People's Republic of China<sup>1</sup>". The pneumonia, later named Covid-19, spread all over the world. Although various efforts for the purpose of preventing the spread of invasion and infection were taken such as border control and intensive medical care, outbreaks with unknown infection

<sup>1</sup> Ministry of Health, Labor and Welfare (2020a). Outbreak of unexplained pneumonia in Wuhan City, Hubei Province, People's Republic of China (3rd report).

routes were sporadically observed, and some areas were faced with the spread of infection. On February 25, the Japanese government established the "Headquarters for the Control of Novel Coronavirus Infections"<sup>2</sup> and on March 28, formulated the "Basic Policy for the Control of Novel Coronavirus Infections".

This policy urges people to take detailed and basic infection control measures so that the "new normal" can take root in society. The measures include (1) thoroughly avoiding the environments called "Three Cs" (Closed spaces, crowded spaces, and Close-contact settings), (2) maintaining a social distance between people, (3) wearing a mask, and (4) doing hand washing and other sanitary measures for hands and fingers. The government has also proposed to conduct active epidemiological studies in order to limit the occurrence of cluster (the group consisting of the closely-related infected patients), expecting that it would prevent so-called "overshooting", the explosive spread of infection, and minimize the number of infected patients, seriously ill patients, and deaths.

In these circumstances, the school system had to be reconsidered. In light of the common features of places where disease cluster may occur, schools were thought to have a high risk of spreading infection due to the following three conditions; (1) closed space with poor ventilation, (2) crowded space where a large number of people gather, and (3) close-contact setting where people do conversation and vocalizations within arm's reach of each other<sup>3</sup>.

It was also pointed out that, even in other settings, there were risks associated with

conversations in crowded places or close proximity and speaking and singing with loud voices<sup>4</sup>, and with other activities which accompany intense exhalation and loud exercise<sup>5</sup>. In Japan, these activities have been commonly seen in the form of classes, school lunches, club activities, and in the daily lives of students<sup>6</sup>. In Yokohama City, where our school is located, elementary schools, junior high schools, high schools, and special needs schools were ordered to temporarily close from May 7 to May 31, 2020, partly in order to formulate future school management policies<sup>8</sup>.

<sup>2</sup> Ministry of Health, Labor and Welfare (2020b). Basic policy for measures against new coronavirus infectious diseases.

<sup>3</sup> Naohide Shinohara (2020). Introduction of research cases related to the indoor environment useful for coronavirus infection control, indoor environment 23 (2), pp.99-106.

<sup>4</sup> Labor Survey Committee (2020). Ministry of Land, Infrastructure, Transport and Tourism summarizes "three-cs" avoidance cases at construction sites Introducing avoidance methods in each situation such as during work, movement, meetings, meals, etc. with photos: Ministry of Land, Infrastructure, Transport and Tourism, Occupational Safety and Health Public Relations 52 (1228), 16-23.

<sup>5</sup> Tsutsumi Gyo, Kubo Akiyuki (2020). Konjac Question and Answer (167th) Abe should be careful about "Four Cs" rather than "Three Cs", Hanada (49), 118-128.

<sup>6</sup> Takanori Noguchi (2020). Food education practice course at a nursery school: Physical and mental health, local food culture, response to disasters (38th) School lunch, meals, and food education under an emergency declaration: Childcare facilities New Corona Virus Infection Counter-measures, Childcare News (782), 37-43,

<sup>7</sup> Kimiko Kazami (2020). What you can do from meals to prevent new coronavirus infections, Journal of the Japanese Society of Health 86 (3), 97-98.

<sup>8</sup> Yokohama City (2020). About the gradual resumption of educational activities at elementary schools, junior high schools, high schools, special schools, etc. <https://www.city.yokohama.lg.jp/kurashi/kosodate-kyoiku/kyoiku/sesau/hoken/rinjikyugyo.html>.

## II. BACKGROUND

According to a survey conducted by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) (2020), the pandemic forced 930 schools (86.9%) out of 1,046 national, public and private universities and colleges of technology (1,070 schools surveyed) to postpone the start of new semester which starts in April. The remaining 116 schools started it as scheduled but online classes were implemented by all schools except one private university, which took measures other than online classes for infection prevention<sup>9</sup>.

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<sup>9</sup> Ministry of Education, Culture, Sports, Science and Technology (2020a). Regarding the response status of universities, etc. regarding measures against new coronavirus infectious diseases.

**Table 1:** Countermeasures taken by universities and other institutions against novel coronavirus infections (1) (MEXT, 2020a)

	Postpone the start of new semester	Start the new semester as scheduled	
		(Consider to) Implement online classes for infection prevention	Take other measures for infection prevention
National Universities	78 (90.7%)	8 (9.3%)	0
Public Universities	87 (82.9%)	14 (13.3%)	0
Private Universities	715 (87.0%)	86 (10.5%)	1 (0.1%)
Colleges of Technology	50 (87.7%)	7 (12.3%)	0
Total	930 (86.9%)	115 (10.7%)	1 (0.1%)

A total of 708 schools (66.2%) responded that they would "implement online classes" regardless of when the semester would start, and 326 schools (30.5%) answered "it is under consideration". Only 12 private universities (1.1%) said they had "no plan to implement" online classes. Almost all universities and other institutions surveyed (96.6%) had the intention to implement online classes as a countermeasure against the novel coronavirus infection.

**Table 2:** Countermeasures taken by universities and other institutions against novel coronavirus infections (2) (MEXT, 2020a)

	Decide to implement online classes	Consider to implement online classes	No plan to implement online classes
National Universities	71 (82.6%)	15 (17.4%)	0
Public Universities	58 (55.2%)	43 (41.0%)	0
Private Universities	536 (65.2%)	254 (30.9%)	12 (1.5%)
Colleges of Technology	43 (75.4%)	14 (24.6%)	0
Total	708 (66.2%)	326 (30.5%)	12 (1.1%)

In addition, vocational schools would follow universities and colleges of technology.

The focus of this study is to comprehensively survey the opinions and comments of students studying at these higher educational institutions from the article of The Koukousei Shinbun Online

(June 19, 2020)<sup>10</sup>. The purpose of this study is to analyze how students felt about online classes provided by such institutions and school life.

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<sup>10</sup> High School Newspaper ONLINE (2020). Students pros and cons of online university classes "Efficient learning" "Uncertain about graduation", <https://www.koukouseishinbun.jp/articles/-/6481>.

### III. DEFINITION OF TERMS

First, "higher educational institutions" include vocational schools, junior colleges, professional colleges and universities. For the sake of convenience, they are collectively referred to as "schools" in this paper. It should be noted that the term "schools" refers to schools in a broad sense and are not limited to the schools specified in Article 1 of the School Education Law of Japan.

Also, how to implement online classes can be roughly divided into three styles. First, students take classes on time via a live-streaming platform like Zoom. Second, students take classes on demand using a combination of online platforms such as Microsoft Form, Microsoft Sway and Microsoft Teams. In this style, projects are assigned to students in every class. Lastly, students take classes by watching the lecture videos uploaded to YouTube and other video platforms. In order to clearly distinguish characteristics of each style, this paper defines the first style as "live-streaming style", the second as "project assignment style" and the third as "posted-video viewing style". Finally, classes conducted online are collectively referred to as "online class (es)".

### IV. ANALYSIS METHOD

To analyze students' thoughts based on the above-mentioned article, the Grounded Theory approach, a qualitative research method, was employed to conduct categorical analysis<sup>11</sup>.

First, I divided the contents of this article into one sentence each as the unit of analysis. Each sentence was then examined to extract the words related to school life from their comments and opinions, and these words were sorted into a subordinate category. The same procedures were taken for other sentences to

<sup>11</sup> Willig, et, al. (2003). Introduction to Qualitative Research Methods for Psychology-For Creative Exploration (Japanese), Baifukan.

examine whether the extracted word had similarity with others.

Next, I tried to find similarities between the related subordinate categories to assign category labels to them, and designated them for upper categories. Moreover, I found similarities among the related upper categories and organized them in order to assign category labels which represent the similarity.

As a result, students' comments and opinions could be sorted into four upper categories, as shown in Table 3. Furthermore, these categories could be organized into two category groups. The following is a description of each category and category group.

### V. RESULTS

#### (1) Advantages of online class

This upper category is named after the positive comments and opinions of students on online classes.

*I think online classes are of great advantage because I don't have to ride a crowded train to get ready in time for the first period of class.*

This student expressed the anxiety about riding a crowded train to commute to school and the satisfaction with the online class program implemented by the school. Avoiding a crowded train also means avoiding three Cs, which may alleviate the fear of infection.

*I sometimes have difficulty taking lectures on campus partly because I feel distracted by friends sitting around me. Also, I can't keep up with the speaking speed of the lecturer. Meanwhile, I am taking advantage of lecture videos as I can watch them repeatedly and deeply learn the lecture at my own pace. Especially on the subjects that interest me, I am able to look at the materials in detail and research my questions to clarify them!*

It seemed that the university of this student

implemented the online classes in the posted-video viewing style. According to this student, the advantage of this style is that students can repeatedly watch lecture videos at their discretion. But as explained in the after-mentioned (2), it also has disadvantages.

*My university allows students to use the chat box freely in large classes. I am unwilling to get on the microphone. But the chat box enables me to "tweet" my honest thoughts. Some teachers pick them up and talk on the matter. It is so interactive and very fun and resembles Instagram Live. I think this is something that can only happen in online classes.*

It seemed that the university of this student implemented the online classes in the live-streaming style. The school also employed a chat box as a means of communicating between teachers and students. It enables the host (teacher) to respond to tweets of the recipients (students). This student compared this style to "Instagram Live" and said that it was "so interactive and very fun". The feeling on this style may differ between students. But this student apparently found a way to enjoy it and learn with enthusiasm.

## (2) Disadvantages of online class

Meanwhile, as listed below, students also thought there were some negative effects of online classes.

*On the flip side of the advantage, the disadvantage of the online class program lies in the difficulty in switching my attention to the lecture. I can take classes on demand and at my own pace. But if I fail to discipline myself, many lecture videos are left unwatched. Such a situation rarely happens on campus as I have to go to the classroom and take classes. I am trying to avoid stacking unwatched videos. But I have taken a lot of subjects because I wanted to get as many credits as possible since the first semester was scheduled to be conducted*

*online. In fact, I have not yet watched videos of some subjects' lectures.*

The school this student attends seemed to implement the online classes in project assignment style. In this case, students receive a project, have to complete it and submit the deliverables to the teacher by the deadline, and then the teacher gives feedback to each student. If the student takes many classes, he/she has to complete multiple projects for each class simultaneously. The burden increases with the number of classes taken. Another student had a similar opinion.

*I have so many projects that I am always occupied with them. I wish teachers would take into account a little more the fact that students have received projects from multiple classes.*

According to the comment "students have received projects from multiple classes", the school this student attends implemented the online classes in project assignment style. While students have a sense of burden, it is thought that a reasonable amount of burden is also placed on teachers. It is because they have to check whether each student has submitted the deliverables and then prepare feedback for each student.

*I tend to leave projects behind. I don't have to take classes at a regular time. Instead, it has messed up my lifestyle as well.*

The comment "I don't have to take classes at a regular time" suggests that the school this student attends implemented the online classes in the posted-video viewing style. As mentioned in the above (1), the unnecessary to take classes at scheduled times disrupts students' rhythm of daily life. It can lead to a decrease in motivation for classes and learning. In addition, this comment sheds light on the difficulty of implementing online classes per se.

*I am majoring in dressmaking, where there are many practical trainings such as "draping" and*



"kimono designing". Learning them online is very inconvenient because there are many things not covered by the online lecture. Teachers just give us explanations of each work while we cannot actually conduct it.

This student expressed dissatisfaction with online classes to learn the process of dressmaking, which requires two-dimensional information to craft three-dimensional objects. It can be assumed that teachers had to limit their lectures to giving explanations due to the difficulty in teaching such processes with little information to be provided. Although students entered the school in hope of studying dressmaking, the lack of practical training is equal to deprivation of learning opportunities.

### (3) Dissatisfaction with the use of facilities

There were also comments and opinions about the limited availability of campus facilities.

*I'm having trouble getting access to the school library freely. It has become more difficult than before to obtain materials for writing reports. Also, there is no quiet place to study where I can concentrate instead of the library. I want the school to open the library at the least.*

This student was bewildered by the difference in the learning environment in comparison to that in ordinary times. It can be assumed that the learning environment for students can be secured because the school is always open and accessible for students.

*I want to use the school library and other facilities. But I am also worried about the risk of infection in case many students flock there. I would like to make campus facilities accessible by appointment only.*

This student took one step further to make an assertion that it would be possible for students to use school facilities if "hygienically controlled situations" were secured. Students or their families have already paid academic fees to the

institution, which allocated a part of collected money to the maintenance of facilities. However, students have complained that they cannot get sufficiently rewarded for the fees. Since April 2020, some groups have campaigned for the refund of academic fees on social networking platforms. If schools fail to take immediate responses, the distrust between schools and students or their families will arise, and there is a risk that it will develop into a protest movement and a lawsuit against the school.

### (4) Dissatisfaction with School Life

Some students expressed dissatisfaction with school life.

*I have not had any friends since I entered school as a freshman. So it is very difficult to speak up in class. If I had a chance to tell my classmates about myself and talk with them, it would be a little more comfortable for me to speak in front of everyone.*

This student has had no opportunity to make friends since entering school. It made this student anxious about school life. So this student asks the school to create an environment where students can talk with each other.

*I wanted to make an appointment with my teacher to receive educational guidance about my specialty and overseas study program, but I haven't done it yet.*

At the school of this student, it is clear that students have difficulty making an appointment with their teachers without hesitation. While some schools implementing online classes have office hours, in schools with the video-posting style online classes, there is a possibility that students have already been accustomed to spending their time at their own pace. It may hinder them from adjusting their schedule with teachers' schedule to have a meeting.



*I'm going to be a senior member of the club next year. But I'm not sure if I'll be able to manage it next year because I have been forced to halt the tasks which should be completed by next year.*

It is thought that this student has been caught between the role in the club and the current situation. In 2020, the pandemic restriction prevented students from carrying out what could have been done smoothly in ordinary times. The frustration arising from the restriction grows as time goes by. Without some measures taken by school, students would not be able to concentrate on learning. Negative effects like this will be likely to be more

apparent in schools which put their focus on club activities.

## VI. CATEGORY GROUP

After dividing students' comments and opinions into four upper categories, they were organized into two top category groups. First, the upper categories "Advantages of online classes" and "Disadvantages of online classes" were grouped together as a top category group named "Impressions of online classes". Meanwhile, "Dissatisfaction with use of facilities" and "Dissatisfaction with school life" were grouped together as a top category group named "Dissatisfaction with school policies".

*Table 3:* Categorization of students' comments and opinions

Category Group	Upper Category	Subordinate Category
Impression on online classes	Advantages of online classes	I don't have to ride a crowded train.
		I can allocate the time used for choosing clothes to study.
		I can allocate commute time to do assignments.
		I can spend my unoccupied time trying something new.
		I can spend my unoccupied time on hobbies.
		Taking online classes at home gives greater focus than face-to-face classes on campus.
		I can read through materials to clarify my questions.
		Using earphones to take online classes allows a greater focus on lectures than taking face-to-face classes.
		I can watch lecture videos repeatedly.
		With the camera mounted on the PC off during class, I can study more effectively.
		I can raise personal questions and requests without being seen by other students.

		Chat box allows me to convey my plain opinions to the teacher.
		It is fun to take online classes thanks to its Instagram Live-like interactivity.
		Online classes allow me to raise questions more actively than at face-to-face classes as I do not have to raise hands in front of others.
	Disadvantages of online classes	I sometimes can't keep up with the speaking speed of the lecturer.
		Online class program makes it difficult to switch my attention to the lecture from other tasks.
		It is difficult to focus on lectures provided online if I fail to discipline myself.
		I can't help but keep unusual hours.
		I have difficulty staying focused.
		I can't help but browse SNS during class.
		Exchange of information with classmates during class turns into chat.
		I tend to leave the assigned projects behind.
		The unnecessary to take classes at a fixed time has messed up my lifestyle.
		I am occupied with too many projects.
		Teachers should take into consideration the fact that students have many projects for other classes.
		It is difficult to learn the processes of dressmaking only online.
		I am worried that I can finish in four years.
		Some classes should be conducted face-to-face.
I have few chances to exchange ideas with other classmates.		
Dissatisfaction with school's management policy	Dissatisfaction with the use of facilities	I can't go to the school library.
		Limited accessibility to materials makes it difficult to complete a report.

		There is no quiet place I can concentrate on studying other than the school library.
		I wish the school library would be opened at the least.
		Campus facilities should be made accessible by appointment only.
	Dissatisfaction with school life	I have had no chance to make friends since entering school as a freshman.
		I wish I had an opportunity to have a conversation with classmates or at least tell them about myself.
		I miss days when I met friends in the classroom.
		I wish I could make an appointment with my teachers to discuss my learning.
		Club activities have been suspended.
		I am going to be a senior member of my club next year. But handover of tasks regarding the club has been suspended.

**VII. SUMMARY**

The comments and opinions appeared in the above-mentioned online article could be grouped into two top category groups, "Impressions of online classes" and "Dissatisfaction with school policies". Through this grouping, how students felt about school life could be drawn as follows.

First, students have enjoyed some advantages in online classes. For example, they did not have to go to school by crowded train. Also, online classes allow them to send personal questions and requests to teachers without being seen by others and ask questions more actively than face-to-face classes, where they have to raise their hand to do so.

However, they also found some difficulties in online classes. They insisted that they had to discipline themselves to make sure to study in earnest. Students taking online classes in the live-streaming style have acquired a bad habit of doing social networking behind the screen

during class. Students of project assignment style online classes have been overwhelmed by the assigned projects. Meanwhile, since students of posted-video viewing style online classes do not have to attend the class at a fixed time, their lifestyle has messed up, which leads to the decline in motivation to learn. Moreover, students who are required to take hands-on practice classes felt it difficult to learn it only online, also leading to a decline in motivation to learn. Taken together, comments and opinions of "Impressions of online classes" suggested that there were advantages in reducing the risk of infectious diseases and doing interactive communication without the intervention of others. On the other hand, it became clear that there were disadvantages such as deterioration of the learning environment for students and their decreased motivation to learn.

Next, students expressed dissatisfaction with the accessibility to school facilities. For example, they had a hard time writing reports

due to the limited availability of materials. So they demanded that schools should make at least the library open or allow students to use school facilities by appointment only. Such measures will give a sense of safety and satisfaction to both students and schools, as students can use the facilities while avoiding three Cs.

Moreover, students showed dissatisfaction with matters other than the learning situation and school facilities. The first-year students who have not attended the school since the entrance felt anxious because they have not had any schoolmates yet. Students of second year or above, who know the details of school well, expressed dissatisfaction with school life because they have had little time receiving educational guidance from teachers such as specialties and overseas study program. Taken together, "Dissatisfaction with school policies" includes the frustration arising from poor interpersonal relations, as well as the dissatisfaction with the unavailability of facilities.

The above-mentioned category analysis using the Grounded Theory led to the following proposals.

- (1) It is important to recognize that each online class style has its disadvantages.

How to implement online classes differs between schools. But it became clear from comments and opinions of students that each method had its disadvantages. When taking online classes in the live-streaming style, students have tended to provide a backdoor for teachers to do other tasks and activities on the sly. Students taking online classes in project assignment style have been overwhelmed by a sea of projects. And students taking online classes in posted-video viewing style have led a messed-up daily life.

Based on this recognition, schools are required to develop better measures. Posted-video viewing style online classes should be considered as an undesirable option since it gives irregular life patterns to students which directly leads to the decreased motivation to learn. Also, if the school wants to live-stream lectures on time, it will be the best way at this moment to develop a system which allows teachers to monitor individual students more easily.

- (2) To fuel students' motivation to learn, lectures should have interactivity and school facilities should be accessible to students in a controlled fashion.

Living environment differs between students. Some may be living in an environment unsuitable to study. It is difficult to improve it, and it is not an area where each school can intervene. Therefore, it should be accepted as an identified concern.

Based on it, schools should give lectures in an environment reminiscent of the one in ordinary days even under the recent situation. It is particularly recommended that schools should develop active learning centering on group work, which contributes to promoting interaction among students and deepening discussions on a certain theme. It can create an environment no way inferior to face-to-face classes where students can actively interact with each other.

Also, especially in project assignment style online classes where students have to submit the deliverables for each class, it is important to develop an environment where students can learn independently. For this purpose, it is required for school facilities to be made accessible in a controlled fashion. To achieve it, schools should pay adequate attention to develop the environment in consideration of the "new normal", or the lifestyle amid and after the pandemic, so that students can take classes

and use facilities with a sense of safety.

(3) Students' dissatisfaction is thought to arise from the weakened interpersonal relationships.

First-year students complained about not having any friends, while students of second year or above were bewildered by the difference of school life in normal days and

under the emergency condition, and dissatisfied with the restriction of group activities. It can be assumed that even students recognize today as an emergency. Nevertheless, they dared to voice such complaints probably because, amid the limited interactions, their frustration and anger arising from their unfulfilled desires turned into their dissatisfaction with school.

### VIII. DISCUSSION

Based on the above study and analysis, I summarized the characteristics of each online class style as below:

*Table 4:* Online class styles and concerns

Style of online classes	Live-streaming	Project assignment	Posted-video viewing
Tool(s) used in classes	Zoom	Microsoft Teams Microsoft Sway Microsoft Form	YouTube
Concern	Students do other tasks and activities in parallel behind the teacher's back.	Students are occupied with projects if all classes are conducted by assigning projects.	Unnecessity to attend the classes at a fixed time messes up the daily life of students.

Each online class style has its own concern in comparison with face-to-face classes. However, the best option among them is thought to be the live-streaming style. In addition, teachers should keep an eye on each student during class. In this case, it is thought that they can give online classes in a fashion comparable to face-to-face classes by replacing paper resumes and other paper materials with ones prepared with Microsoft PowerPoint. Still, it should be noted that there are some classes that are difficult to be given online.

Practical training classes require students to acquire not only theories but also skills, which are, in general, directly instructed by teachers. Therefore, schools giving instructions of

practical training are desired to divide students into some groups, order each group to attend school at the dispersed times and then give face-to-face instructions, depending on the condition of the spread of infection.

The governing agencies including MEXT and MHLW allow childcare training schools to hold alternative classes when it is difficult to conduct on-site training at nursery schools and kindergartens. However, whether teachers can provide students with the same level of educational contents that could have been provided through practical training depends on the efforts of each school. And it is up to each teacher who provides instructions on whether students' opportunity of learning can be

guaranteed. How to provide lectures in an alternative fashion in order to guarantee the opportunity for practical training will be the subject of further study.

The spread of infectious diseases has exposed the backwardness in the utilization of IT and ICT in education in Japan. The Japanese government has been advocating science, technology, education, and math (STEM) education as the education style of the 21st century. In reality, however, it cannot be realized without the originality and ingenuity of the teachers on site and administrative staff who make efforts to come up with money. It is in these difficult situations that progress can be made. I have high hopes that we can overcome the aforementioned concerns and develop online classes that are superior to face-to-face classes.