

Impact of the COVID-19 Pandemic on Teaching in Korea in Higher Education

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ABSTRACT

The COVID-19 pandemic in 2020 forced many educational institutions to switch to online teaching. Various technologies were adopted in these emergency conditions, without preparation or consultation, and often disregarding the possible consequences. The present paper aims to identify important issues that occurred during one year of online teaching in the Republic of Korea, and to evaluate the impact of online teaching practices for faculty members and students. By method of a survey among several universities the author investigates trends and experiences on a national level. The results show the most important methods and technologies selected by the universities in Korea for online teaching and the paper discusses the consequences of internet based virtual learning on students' privacy and legal rights. The survey responses show contributions made by faculty members in Korea on the technical, financial, and media production level. The results indicate that fundamental issues of education were neglected in the state of emergency and could be improved for the future. This article aims to support decision makers within the education system to improve education quality for both educators and students.

Keywords: COVID-19, Online teaching, Privacy, Virtual education, Republic of Korea, and State of emergency

1. INTRODUCTION

At the beginning of 2020, the Korean government saw the country affected by the pandemic[1]. To flatten the curve of infection and protect the population, the Korean government decided to take important measures. First, they delayed the start of the school semester by two weeks. Since matters

did not improve during those two weeks, the government declared that all education classes had to be held online [2].

This paper aims to examine the consequences of this decision and the main challenges that need to be addressed when abandoning in-person classes and commissioning online classes. Using the internet in teaching affects privacy, freedom of speech, copyright, and image and voice rights. What are the principal characteristics of classes in both in-person and online classrooms? How do they differ?

According to a worldwide survey by the International Association of Universities, online classes seem to have become a new paradigm in more than two thirds of the universities worldwide [3]. Studies about the impact of COVID-19 have also been conducted globally. This paper contributes to the discussion of lessons related to online education that have been learned during 2020, with a special focus on the experiences in the Republic of Korea.

1.1 Classes in the Classroom

There is a long tradition of classes in physical classrooms. Sometimes referred to as *face-to-face teaching* [4], the students come to a specific classroom at a given time. Class sizes vary. Different teaching methods encourage different seating arrangements, but the students can see the teacher and vice versa. The relationship between teacher and students is not altered by technology. Unlike written examinations, students' classroom performances are not recorded. The classroom is a protected space where teachers and students can practice and enjoy freedom of expression without surveillance. Pictures and video are not recorded in

the classroom without permission from teachers and students, although students may take pictures of information the teacher has posted on a blackboard or other writing surface at the front of the class [5].

1.2 Online Classes

Defining online classes is more difficult. Online universities have been practicing distance-learning for decades, with the Fernuniversität Hagen in Germany [6] and the Centre National d'Enseignement à Distance (CNED) in France [7] as two examples. These institutions have years of experience and research of pedagogical effectiveness behind them; they utilize the most up-to-date technology to create efficient remote learning. 'Remote classes' are not necessarily equivalent to 'online classes.' Remote classes use dedicated study materials and adaptive technology which students can use off-line, such as specific texts and paper assignments and examinations. The new terminology of 'online class' refers to a kind of teaching which requires a constant connection to the internet. In Korea, traditional teaching institutions were not prepared for the technical challenges of switching to online classes in 2020. Lack of IT competence and purchases without public offerings created an exceptional situation. To understand whether experiences were similar throughout the Republic of Korea, a survey was conducted with participants around the country.

2. METHOD

Obtaining data about the impact of COVID-19 on the teaching experiences during the pandemic was achieved by conducting an online survey that consisted of 65 questions. Answers were given in the form of numerical fields for input values such as time and multiple choice fields or open fields for free input. Subjective questions were asked on a 10-point Likert scale [8] where 0 = poor and 10 = excellent. Responses were collected from 10 January 2021 to 10 February 2020. Questions are grouped in the following fields of interest:

- personal background: gender, teaching experience and media creation expertise.
- online course production: teaching time, extra preparation time, teaching materials provided or purchased.
- online course content: nature and proportion of content.

- attendance: features of learning management systems.
- labor contract: clauses and compensations.
- management: employer evaluation of support, communication, and decision participation.
- privacy: application of privacy practices.
- feedback: evaluation of student, management, and self-feedback.
- open answer: open experience contribution.

To reach the maximum faculty members in Korea, the survey link was published as a page, "koreasurvey," on the social network Facebook. It was posted in the private group: Foreign Professors and University English Teachers in Korea (3.6k members). The invitation to the survey with the request to reshare was published via email to the network of Korean nationals and foreign faculty members of Kwangwoon University (approximately 300 individuals).

During the explanation of the survey, concerns arose regarding the consequences of criticising the universities that employed the participants. The author therefore decided to conduct the survey fully anonymously. The respondents participated with informed consent: They were informed that the survey responses would be used for the purpose of creating an article for publication, and that the data could not be traced back to individual respondents. Contact to the author was provided as well as a separated contact list to see the results of the research. In total, 39 individuals participated in the survey, which was less than expected. There are a total of 256 Korean universities recognized by the Korea Academic Recognition Information Center(KARIC)[9]; representatives from 19 different universities responded to the survey.

Survey results are presented in the next section. The discussion section considers further impacts on teaching by analysing the features of the technological choices made by university management and faculty members.

3. RESULTS

An anonymous nationwide survey was conducted among foreign and Korean national faculty members to identify trends in the impacts on teaching during the COVID-19 pandemic. This section presents the answers of the respondents.

3.1 Demographics

The survey was conducted online between 10 January and 10 February 2021. It was promoted on Facebook, in groups that are specialized for teachers in the Republic of Korea. Survey data were collected via online form. Data sets were processed for evaluation using R and JASP [10]. There were a total of n=39 participants. The survey was conducted anonymously. The first section of questions is related to personal background information. Table 1 shows the frequencies for participant gender.

Table 1: Frequencies for Gender

Gender	Frequency	Percent
Female	10	25.641
Male	29	74.359
Total	39	100.000

The participants were asked to self-evaluate their competence level in two fields: general computer usage, and media production. The respondents tended to evaluate themselves as having a high level of competence in both fields. The results of this self-evaluation are shown in figure 1.

The high competence level in media creation can indicate that faculty members have a good understanding of the technologies and tasks involved in online teaching.

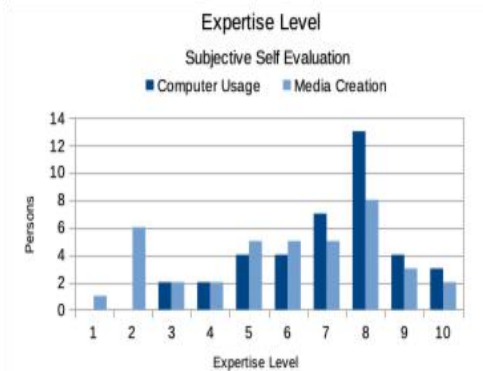


Figure 1: Subjective expertise level

Table 2 shows that the majority of respondents have more than 10 years of teaching experience.

Table 2: Years of teaching experience

Teaching Years	Persons
1 to 5 years	3
5 to 10 years	9
more than 10	26

Table 3 reveals the faculties and location of most respondents. The identifier 000 was used as the university name for those who did not wish to disclose their employer.

Table 3: Participant University Names

University Name	Frequency	Percent
HUFS	1	2.564
Gwangju University	1	2.564
Gyeongju University	1	2.564
Hanyang University	1	2.564
Incheon National University	1	2.564
Kongju National University	1	2.564
Kosin University	2	5.128
Kwangwoon University	6	15.385
Pusan National University	1	2.564
Soonchunhyang University	1	2.564
Yeungnam University	1	2.564
Cheongam College	1	2.564
Dongguk University	1	2.564
Hongik University	1	2.564
Joongbu University	1	2.564
Keimyung University	2	5.128
Suwon University	1	2.564
Woosong University	1	2.564
000 (not disclosed)	14	35.897
Total	39	100.000

3.2 Online Content

Participants were asked to indicate the quantity and quality of content. Figure 2 shows the number of teaching hours produced per faculty member per week. Most respondents teach less than 20 hours per week.

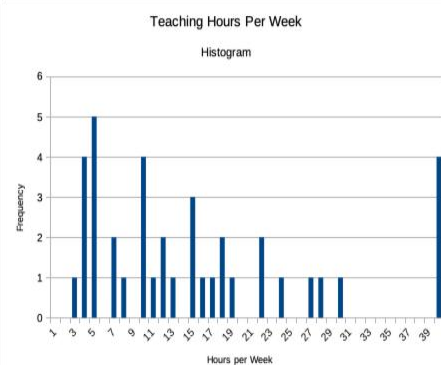


Figure 2: Teaching Time per Week

Faculty members were asked to evaluate the additional number of hours of preparation spent for a single online class. Figure 3 shows that most of the respondents spent up to three hours completing extra preparation, and almost 30% spent four or

more hours in additional preparation for online classes.

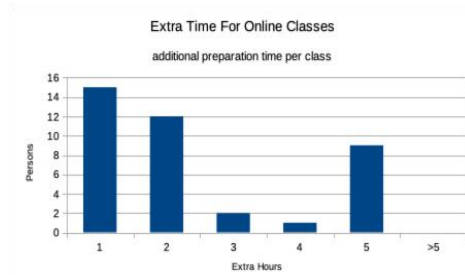


Figure 3: Extra hours for class preparation

Participants of the survey were asked to describe the different elements within their classes in percentages: videoconferencing, pre-recorded video, quizzes, and applying interactive elements. Figure 4 shows a polarity in the composition of content. Most faculty members seem to have chosen a teaching method that includes either videoconferencing or pre-recorded lessons. Overall, the number of exams and quizzes in online classes was generally very low. This could indicate difficulties with the evaluation of learning performance.

3.3 Content Production

This section investigates the individual experience of content production for university professors. Over two semesters in 2020, multiple teaching technologies were put into practice. While many faculty members used videoconferencing, others produced pre-recorded contents or used combinations of the methods. As physical access to most university facilities was limited, faculty members were either provided with video production tools by their employers or used their own personal equipment and materials to ensure teaching. Figure 5 shows what kind of equipment the respondents used for online course content creation. The figure also shows to what extent employers provided support for the equipment that was provided. Almost all faculty members used their personal equipment. Employers provided little to not equipment support.

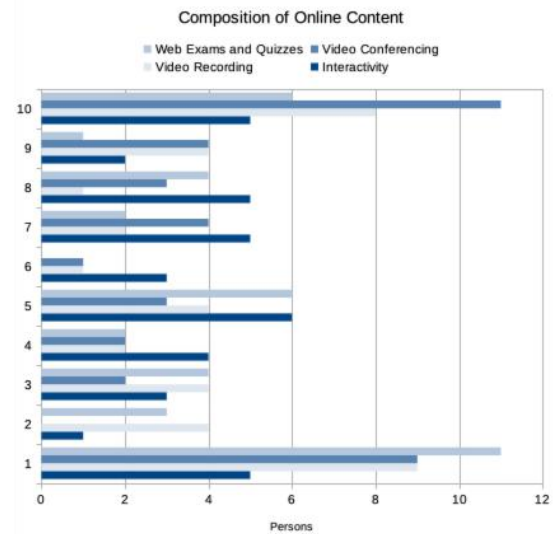


Figure 4: Content Composition

About half of the participants were provided servers and software by their employers, i.e., employers supplied infrastructure to host video content or used a global site license for various types of software. However, more than a half of the software and servers were not provided by employers. Instead, faculty members used their privately owned equipment.

The participants stated that equipment such as cameras and microphones, which are essential for the technical quality of online classes, were mostly not provided by the employers. Hard drives used to backup class videos and teacher made study materials were mostly supplied privately.

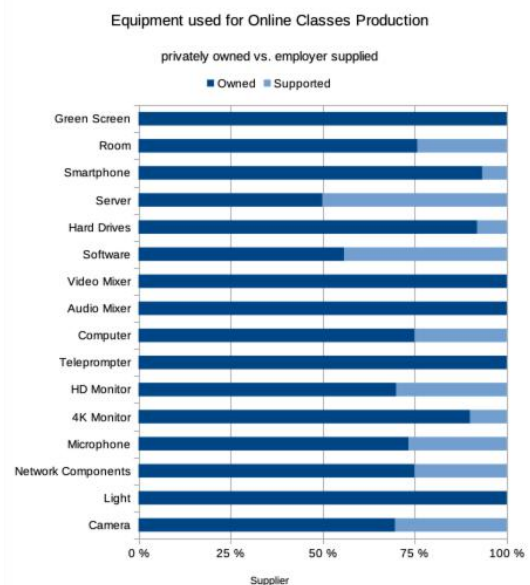


Figure 5: Equipment for Online Classes

Participants were asked to evaluate the overall support they received from their employers. Figure 6 shows that the majority of the respondents felt they received very little or no support from their employers.

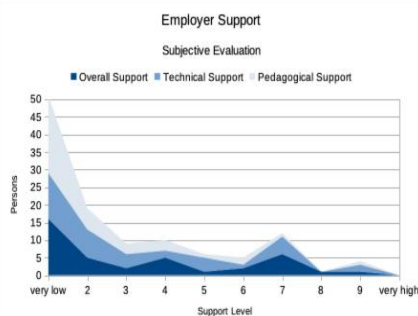


Figure 6: Subjective Overall Employer Support

Previous responses show that faculty members primarily used their own equipment to provide online classes during the pandemic. To approximate teachers' financial investment, respondents were asked about the amount they spent on new equipment to create online classes. Figure 7 shows the results. Most of the faculty members spent between 100 and 2000 USD. Based on the survey responses, none of these investments were supported by the employer or by tax refunds. Only one respondent indicated that they received 100-400 USD in the form of government support.

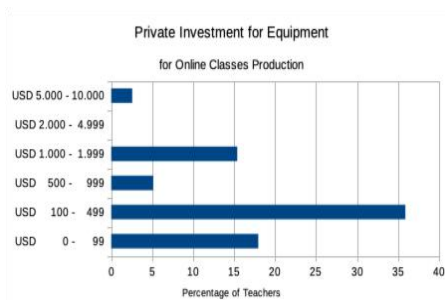


Figure 7: Equipment Investment for Online Classes

3.4 Infrastructure

Infrastructure can be seen as the backbone of a digital education system. Figure 8 shows an overview of the answers categorized in yes, no and don't know regarding features of university infrastructure:

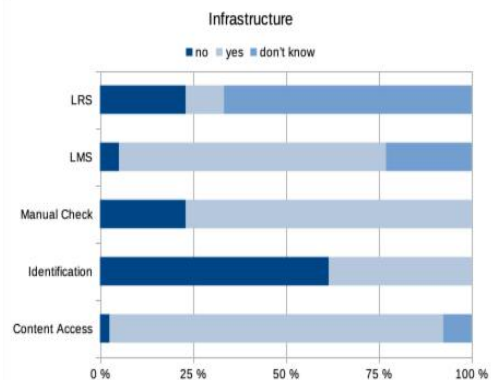


Figure 8: faculty infrastructure

3.4.1 Content Access

Most survey participants stated that they had access to content they produced. This includes the pre-recorded videos as well as the recordings of live videoconferencing. Course materials and recordings were therefore accessible to them in cloud storage in the case of recorded videoconferences or their own hard drives or servers when they were production and hosting on their own.

3.4.2 Student Identification

For most faculty members, no technology was available to validate the identity of the students taking part in the lectures. Even though universities require password and logins in their learning management systems, which could be used to track attendance, most respondents indicated that they still had to check the attendance of students manually. As most faculty members stated that the university infrastructure included a learning management system, these systems were not updated to properly manage course attendance and progress monitoring. This could be due to the low involvement of educators in the decision process, as shown in Figure 10.

3.5 Labor Contract

Creating videos for teaching involves a variety of copyright and work contract related regulations. Survey participants were asked if employers provided compensation for production of online classes. Figure 9 shows that, for most respondents, commissioned video production is not covered by their working contracts, and most respondents confirmed that no financial compensation was given for the additional work.

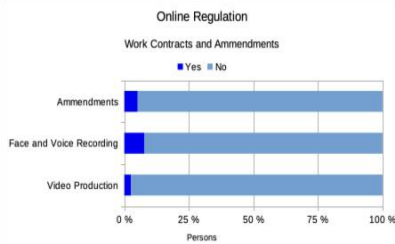


Figure 9: Work Contract Regulations

3.6 Management

Most of the survey participants did not indicate a strong learning curve in the handling of online classes by the administration over one year. Figure 10 shows the result of the evaluation among the survey participants: In the best cases, the employees evaluated the performance of their employers as average, with some participants stating that their employers' management improved between the first and second semesters. In general, the employers' communication skills were rated as average.



Figure 10: Subjective Management Evaluation

Most respondents indicated that their employers were not ready to manage unexpected problems. This could be a result of survey respondents not feeling that they were kept well informed by their university administration. In this section, employer appreciation and employer care received the lowest scores (below average) from most participants. The mean evaluation of salary satisfaction is average. In evaluating management, most respondents indicated that their workload had increased.

Evaluation of teaching and education performance depends on the quality of feedback provided to faculty members.

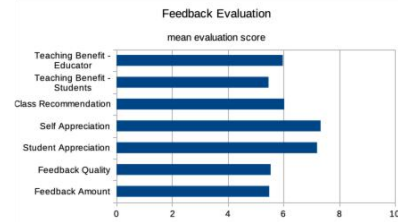


Figure 11: Online Classes Feedback Quality

Figure 11 shows an average evaluation level regarding the quality of feedback. Participants evaluated their self-appreciation as well as their evaluations by students highly, with an average of almost 8 out of 10 points. This could mean that the responding faculty member could feel appreciated by their students and have high self-esteem for the work they accomplished. However, teacher evaluation is usually used for reemployment. In Korea, students are often required to evaluate their teachers as part of the grading process. Many studies have examined the reliability of these evaluations. Boring and al. question the efficiency of student grading to measure teacher's effectiveness because of bias [11]. Most survey participants gave an average score regarding whether online teaching provides significant benefit for the student or for the teacher.

3.7 Privacy

Practical application of the privacy issues can be evaluated by observing the communication methods and technologies used by faculty members and students.

3.7.1 Correspondence

Figure 12 shows the most used communication technologies among the survey participants during the two semesters of 2020. Almost 70% of email was sent without encryption. Almost 60% of groups used the popular Korean messenger service Kakaotalk, which is owned and operated by a large private company. In recent years, Kakaotalk was criticized for disclosing private communications to the government [12]. Approximately 50% of the communication related to education is handled over services hosted by employers (universities). Most of these services do not implement privacy security mechanisms. It seems employers relied mostly on the private emails and messengers of the faculty members, which were completely outside the control of privacy regulations. Only a small number of the respondents used encrypted emails

(e.g., using PGP) and encrypted SMS (e.g., Signal messenger).

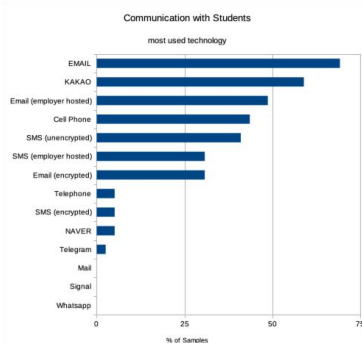


Figure 12: privacy and communication methods

3.7.2 Videoconferencing

There were multiple possible options available regarding videoconferencing technology; the responses are shown in figure 13. The most common video conference systems used were Cisco’s Webex and Zoom.

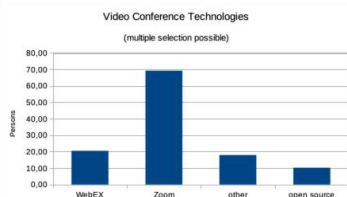


Figure 13: Video Conference Technology

Self-hosted and potentially controllable open-source solutions could be an alternative to protect faculty and student privacy, but they account only for a negligible fraction of the technology used by the respondents. Expectations for better service might have pushed universities to choose outsourcing.

4. DISCUSSION

The important increase of internet usage in education has a significant impact on many aspects of daily life that used to be well regulated, such as protection of private information and copyright. The educational practices in 2020 show that important legal aspects in the relation between faculty, educators and students can be improved. This section discusses the impacts of online teaching.

4.1 Contract Violations

In many cases, teaching methods are not explicitly defined in a teacher’s labour contract. This does not mean that the employer can choose any teaching method and force the employee to comply. The

average teaching contract does not include agreements to produce videos, create content for online classes, or to complete video editing and transcoding. The survey results indicated that the universities did not address issues of compensation or financial support for additional workload. Most financial figures of Korean universities from 2020 and the previous years have already been published by the Korean Center of University Information Disclosure [13].

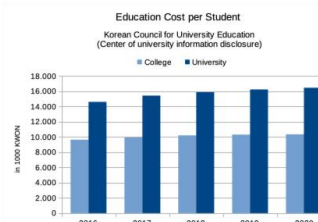


Figure 14: Average education cost per student over time

According to figure 14, the trend of education cost per student does not seem to be affected by the COVID-19 related measures. Additional tasks and unilateral extension of workload can be perceived as a labour contract violation.

In the Republic of Korea, students attending private universities had to pay the full tuition fees during virtual learning. Students were denied many of the university services which they had paid for. Delivering another service to the customer than the one agreed upon can be regarded as a breach and violation of a service contract. In a poll conducted by the National University Student Council Network, students complained about the poor quality of online classes and over 50% called for a half tuition refund [14].

After one year, private universities in the Republic of Korea did not use legislative measures for compensation when teaching business was in danger. Legal action against the government was only taken by small business owners, such as fitness centres and private schools (Hagwon) [15]. The National Tax Services of the Republic of Korea did not support any investments made by the faculty members, and as employees, only the generalized deductions are applicable [16]. Other countries, such as Germany, changed taxation policy and published a new directive in April 2020 to reflect the changes from home office work for all taxpayers, including teachers [17]. This study’s

results indicate that the burden of technology investments for creating online classes during the 2020 pandemic in the Republic of Korea was mostly paid by the faculty members.

4.2 Amateurism vs. Professionalism

With little to no preparation, South Korean faculty members in 2020 were forced to become media producers. Some teachers already had media experiences due to flipped and blended learning practices, which have become popular in recent years in some universities [18]. However, many professors were challenged by creating and producing new content. As of this writing, there is no exhaustive survey about the nature of the online classes content created in higher education in South Korea due to the COVID-19 pandemic. Despite the small number of participants in this study, the results could give some indication regarding the creation of content. Regarding secondary education, however, larger amounts of data are available, and extensive surveys have been conducted among 224,894 out of 443,132 teachers in elementary, middle, and high schools throughout the Republic of Korea [19]. The principal result of this content evaluation, commissioned by the Ministry of Education is summarized in table 4. This overview can help to interpolate how content creation was handled during the pandemic.

Table 4: Most Frequently Used Content

Online Content	%
Teacher-developed content	58,4
Private Content such as Youtube Content	43,3
EBS lectures	42,1
Digital Textbooks	17,2
Lectures provided by KERIS and Wedorang, etc.	14,4

The last three values account for lectures made by the Educational Broadcasting System (EBS) 42.1%; Digital Textbooks 17.2%; Keris and Wedorang 14.4%. These three categories show content made by professional companies who specialize in media production and broadcasting and have expertise in conventional and digital publishing. On the other hand, most online class content for secondary education was made by the teachers themselves, closely followed by user generated videos on YouTube. This indicates that almost 60% of the education content was made by

amateurs in media production, where merely about 40% were made by media professionals.

4.3 Privacy Violations

The massive usage of the technology that replaced presence in the physical classroom has a significant impact on the privacy of teachers and students. Many support documents and guidelines provided technical tips and tricks. In other countries, similar publications could be observed: Tawafak et al created a technological topography for the education situation in India [20]. Their research focuses more on practical usability than issues of privacy. In the Republic of Korea, the Ministry of Education published guidelines for primary and secondary education presentations to increase awareness among students and teachers about privacy issues. [21] However as the universities in Korea are considered independent, no equivalent material was created for universities.

4.3.1 Permanent Recording

Permanent video recordings are subject to strict regulations. Closed Circuit TV (CCTV) cameras in public transportation vehicles public buildings are usually announced to visitors. Privacy laws and regulations in Republic of Korea restrict the purpose, storage duration, and access to recorded images [5]. During videoconferencing, many users are not aware that they are permanently recorded, just as if they were exposed to CCTV. Recording is normally at the discretion of the conference initiator, regardless of the participants' consent. For example, the conferencing software Zoom implements a recording disclaimer function; the initiator can turn on a notification setting that alerts all participants to the session being recorded and then offers them the option of consenting or leaving the session [22]. In all conferences organized by the author's faculty, this feature was never applied. One explanation for this failure could be that it postpones a problem rather than solving it. If attending the conference or class is mandatory, there is no ability to opt out of the recording. Employees must agree to this privacy violation when participating in recorded faculty meetings.

Since videoconferencing is multi-directional, all participants can be subject to recording. It is impossible to know if audiovisual communication is only streamed or being recorded by the application or the screen recorder of a user. This

permanent traceability and recording can undermine the privacy of speech inside the classroom.

4.3.2 *Uncontrollable Recording*

Cases of privacy violations due to uncontrollable recording are connected to the introduction of laptops provided by schools [23]. Voice activated devices, such as Amazon's Alexa or Apple's Siri, have also proven to be insufficiently regulated in how they retain recordings of their users [24].

Online class participants cannot control whether their participation is being recorded or not. In many cases, the video conferences initiated by the educational institution begin with recording turned on and cannot be disabled for those who wish to opt out. However, even without permission, most screen capture programs allow the screen to be recorded along with audio so that recordings can be shown in social networks. This can result in mobbing and bullying. The impact and psychological damage can be enormous. People in the Republic of Korea can be considered sensitive regarding hate speech and internet mobbing, particularly as they have led to suicides among Idols or Korean Pop Stars [25].

4.3.3 *Privacy Leaks*

In 2020, most institutions had a very short time to react to changes, and no opportunity was given to compare services and evaluate their advantages or disadvantages. This could be an explanation why most institutions decided to use the services offered by external service providers. To quickly provide a solution for videoconferencing and online classes, universities engaged in group contracts that transmitted personal data, such as name, contacts, and email addresses, to third party companies without asking employees for consent.

One year later, two companies lead the market for videoconferencing in universities in Korea:

Cisco WebEx: As one of the leaders in hardware and network communication, Cisco's web conference system WebEx has become popular in many universities. In recent years, Cisco was known for using back doors in many of their products. The revelations made by Edward Snowden's leaked documents show that Cisco was involved in massive exposure of private information [26].

Zoom: the main beneficiary of the pandemic according to Emailtooltester Zoom has a market share of almost 70% of the video conferencing market in Korea. The company was reported to have many security flaws which allowed events such as Zoom-bombing, and did not communicate clearly how video streams and user data were stored. Anglioni et al. discuss many of these aspects and alert about issues of privacy related to the so-called platformisation of education [27].

Instead of developing IT competencies in universities, most responsible organizations promoted outsourcing. Very few groups published technical comparisons of the different service providers and rated them. In Germany, the Ministry of the Interior published an evaluation stating Cisco WebEx and Zoom do not conform to privacy laws and are not recommended [28]. In Korea, re-evaluation of choices made in emergency situations could be appropriate.

4.3.4 *User Tracking*

When students enroll in an institution, they usually have to accept everything the university is proposing as Information Technology services. This includes the schedule and attendance systems, along with online participation, assessment, and examination options. In Korea, usually only large IT companies e-commerce websites request user consent for data processing. Korean universities policies are often missing or hard to find. Most web pages include trackers through hidden scripts that can transmit IP-addresses and other data to Google. Users have little chances to escape these tracking mechanisms. Students are generally not informed about the usage and purpose of this data transmission. More transparency could increase the trust granted to IT activities from the university.

4.4 **Copyright Violations**

Many countries prohibit filming without agreement and have laws to prohibit illegal copying and distribution of intellectual property. In the Republic of Korea, many copyright issues have been addressed by the Ministry of Education in the material for Secondary Education students who are attending online courses [21].

Online videoconferencing can be a permanent method for filming, recording, and copying. Acting is generally respected as a profession. Movie producers know that copyright release forms are necessary to use actors' performance and images.

Their usage is the result of negotiation and a contract. Recording the face and the voice of a person usually requires compensation. When classes are filmed, they become audiovisual works similar to a movie, a documentary, or a television drama. It can seem paradoxical if the government both strictly enforces copyright laws and punishes violations [29], while also requiring educators to produce online classes with no licensing costs or considerations for their copyrights. In the case of online classes two groups of actors are concerned:

4.4.1 *Filming the Teacher*

Instructors are the main actors of online classes. During recording, teachers also work as camera operators, sound engineers, and video editors. Each of these activities usually involve copyright and represent dedicated professions. Following the Korean Copyright law, creative works are copyrighted over 70 years after the death of the author [30]. Table 5 shows a sample overview of average salaries for the above-mentioned activities [31] and can help indicate to what extent faculty members in Korea have subsidized the private education system.

Table 5: Entertainment Average Wages Seoul 2021

Job Title	Monthly Wage
Actor	5,120,000 KRW
Broadcasting Presenter	5,310,000 KRW
Colorist	2,070,000 KRW
Director of Photography	4,360,000 KRW
Graphic Designer	2,650,000 KRW
Makeup Artist	2,640,000 KRW
Media Equipment Operator	2,310,000 KRW
Producer	6,340,000 KRW
Sound Engineer	3,490,000 KRW
Subtitle Editor	2,560,000 KRW
Video Editor	3,240,000 KRW

4.4.2 *Filming Students*

Filming students is also significant. As participants in videoconferencing, students are technically always recorded. If they want to participate in the class, students must consent to being recorded. In 2020, many students have either turned their microphones and video cameras off or directed the cameras towards the ceilings. Interactive videoconferences become unilateral webcasts.

Many of these questions remain open and have not even been addressed by universities. Media competence is often a topic in education in South Korea [32, 33]; the current situation could make it seem that media competence and education are more valued for students and less for universities and educators themselves.

4.4.3 *Copyright Infringements*

As faculties and teachers create content, there is a danger that copyright violations might occur during this process. How do faculties and teachers avoid such copyright violations? Who is responsible for the verification? Korean research institutions request beneficiaries of governmental funding to listen to an online presentation about research ethics [34]. The purpose is also to ensure that researchers are sensitive about copyright violations. Equivalent programs regarding online classes were not observed during the two semesters of 2020.

4.5 Student Identification

Teachers are generally able to identify students who they see regularly in the classroom. In online classes, it is difficult for the teacher to verify the students' identities. The same applies to online examinations. Learning management systems can confirm if some tasks have been completed, but it is difficult to be certain who completed them. This is in principle not different from ordinary unattended homework. Better identification systems could help improve the reliability of the online examination results. In the Republic of Korea, every user of online banking and each taxpayer is used to cryptographic identity verification using public key infrastructure (PKI) [35]. Instead of modernizing their own web services, many universities allow third party companies to build entire business models based on scraping university learning management systems with more user-friendly interfaces and social integrated networks [36]. The public key infrastructure could be used for identification in online classes.

4.6 Social Inequality

During videoconferencing, participants can observe each other on video tiles. Similar to using a dark table in photography, various image qualities become immediately visible. It is easy to identify which students own better cameras or lower quality devices, making social differences much more visible. It is difficult to escape evaluation of the

visual impression. In many countries, including the Republic of Korea, school uniforms are enforced until high school to reduce social differences. Online learning creates new challenges for teachers and students to keep these principles.

5. FUTURE RESEARCH

Most of the experience discussed in this research are observations made during two semesters of teaching in 2020 in Korea. The author is aware that the small sample size can only provide some indications. Many international studies in different institutions and countries have been conducted on the impact of COVID-19 on education. For example, Marinoni et al. conducted a worldwide survey to evaluate the impact among higher education institutions globally [3]; John Daniel addresses the repair of damage to students learning trajectories [37]. During the COVID-19 pandemic, many players have followed their own agenda. Public blaming and social pressure in Korea can often be observed in institutions as well as in public discourse. More open discussions could be obtained in time, when the risk of contradicting authorities and government diminishes.

6. CONCLUSION

Online classes using videoconferencing have become popular during the COVID-19 pandemic in 2020. Politicians and educational institutions regarded it as a solution to overcome the complete closing of schools. In Korea, the teaching methods were often described as new, but most of them had already existed in online universities and businesses. What started as an emergency then became normalized. Readjustments may therefore be necessary. There seems to be a tacit understanding that online classes can be a substitute to classes in the classroom. This article discussed several consequences of moving in-person classes towards the internet. The impact of the shift touches almost all aspects of social life: The potential of permanent and uncontrolled recording threatens free expression that could exist in the classroom. Videos taken in homes can disclose social status and increase social differences. Freedom of expression in the classroom without monitoring has yielded to a situation where every sentence is tracked and recorded, and every spoken word can potentially become public.

Teachers, and partially students, have been promoted to audiovisual producers without the skills, the technical means, or financial compensation.

Financial indicators of universities in Korea, in combination with data from this survey, can create the impression that Korean universities as businesses managed to avoid financial damages during the COVID-19 crisis at the cost of faculty members and students.

The impact of online classes as a response to COVID-19 had an impact on almost every social aspect of higher education. The author wishes that the discussion in this paper contributes to a more balanced and fair organization among all parties implied in the future. This could be beneficiary to the quality of education for faculty members and students.

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