Understanding internet ethics through UCC production and teaching method for everyday practice

Jongwan Kim[1]*, Hee-Jae Kim[2], Soon-Cheol Kim[3]

[1]*Division of Computer and Information Engineering, Daegu University, S. Korea*
[2]*Division of Computer and Communication Engineering, Daegu University, S. Korea*
[3]*Division of Computer and Information Engineering, Daegu University, S. Korea*
*Corresponding author E-mail: jwkim@daegu.ac.kr

Abstract

In order to effectively teach Internet ethics classes to students, we have incorporated several internet ethics videos in the class. Since the latest video presentation and its discussion were performed, it was helpful for students to recognize widespread internet ethical issues. However, simply passive video watching is insufficient in terms of improving student learning outcome to enable students to apply proper internet ethics in real life. In this work, two or three students teamed up to produce a UCC about internet ethics. Team project teaching methods are effective in not only engaging students to actively participate in class, but also to understand important concepts by producing videos themselves. Through this project, the student can reflect on his/her ethical attitude in everyday life and learn how to improve it. In addition, as a result of learning mutual copyright verification through the assignment, the possibility of copyright infringement is lowered and the burden on instructors to perform fair evaluations is reduced. Through the questionnaires on the students, we have confirmed that the UCC project teaching method is effective for students' understanding and real-life application of internet ethics.

Keywords: *Copyright infringement; Internet ethics; Team project education; UCC production; Understanding and practice education*

1. Introduction

The fourth industrial revolution, represented by artificial intelligence (AI) and block-chain technology, is coming. In Korea, in March 2016, Google DeepMind's Alpha Go program and Sedol Lee Professional's Go match surprised the whole nation with AI and rapid technological development. In addition, Google and NVIDIA's autonomous self-driving technology has been able to run on real roads with in-depth learning based on deep learning technology. In block chain technology, a certain amount of transaction information is gathered to form a block, and these blocks are sequentially connected in a chain in time to constitute a P2P distribution ledger. Since the transaction data is distributed not to the central server but to the transaction parties, it has driven an investment boom of cryptocurrency such as Bitcoin and Ethereum cryptocurrency together with the reason that it builds a paradigm of a block-chain economy that is difficult to hack. Beyond Internet technology, Internet ethics education has reached a turning point as technology continuously develops in the Fourth Industrial Revolution Era.

Ethics refers to human behavior that must be morally practiced in human society and should be observed in the relationship between people and people. Existing ethics is temporally now and spatially here, and the criteria of moral judgment takes the motive rather than the result of the act, and the human being becomes the subject and the object in an ethical issue. In today's knowledge and information society where the Internet is used as a routine, various ethical problems have been arising in industrialized societies. Internet ethics, a branch of applied ethics, copes with internet related problems for the purpose of ethical inquiry by D. Langford. In the era of the 4th Industrial Revolution, with the development of IT technology, internet ethics education is urgently needed because of leakage of personal information, flooding and addiction of information, increased access to harmful information, copyright infringement and information security. It is common practice to use internet and multimedia technology for teaching lessons as opposed to the use of textbooks or fixed bulletin boards.

In Korea, the National Information Society Agency (NIA) has recently conducted research on the satisfaction of Internet ethics education and change of consciousness and behavioral style from April to October, 2018. In this research, a research organization in charge of Internet ethics education conducts a change of consciousness to education beneficiaries (students, parents) before and after the start of education. In addition, the education satisfaction survey is conducted by an individual in charge of the Internet ethics education (education subject called instructor) who conducts a survey of the educational beneficiaries at the end of the education program [1]. These attempts are also related to the improvement of the consciousness of the importance of Internet ethics education of the whole nation.

On the other hand, the teaching material of Internet ethics has been widely used in the classroom. The emergence of new IT technologies such as AI and the Internet has allowed us to share and collect more material with the help of social networking services (SNS) such as blogs, CyWorld mini-homepage, Facebook, Twitter, KakaoTalk, Snapchat, and Instagram as well as YouTube including video and audio. Owing to online resources and technology-based applications, students are familiar with the dynamic classroom environment. Instructors can use online video as lecture materials and can announce their assignments and respond to class questions using SNS or blog,

and they also use instant messaging during student counseling. According to a study done in the U.S., incorporating videos in the classroom leads to increased retention of information by students and helps them comprehend the material quicker than students who are not exposed to videos [2].

In this work, we propose a teaching method of internet ethics video production to enhance students' learning effect and willingness to practice based on their experiences of lecturing Internet ethics for university students for several years. Especially, in contrast to pre-collected video watching lessons performed by other researchers, the students construct their own teams of 2-3 persons to produce UCC (User Created Contents) related to Internet ethics. UCC is any form of content, such as text, images, audio, and videos that have been posted by users of online platforms such as social media. And we will analyze how they affect the students' will to practice Internet ethics. Therefore, the title of the UCC, the motive of production, the story of the work, and the daily practice effect are described in the students' project report together with the UCC. At this time, the effect of practicing in everyday life is to describe the mindset of practicing UCC in daily life and the result of performing it.

In Section 2, we describe the related works on Internet ethics education and multimedia technology utilization. Then, we explain the internet ethics understanding and practice effect based on video production experience in Section 3 and we analyze the results of the questionnaire survey for students in the Internet ethics class in Section 4. The conclusion is written in Section 5.

2. Related works

In 2001, information ethics education was implemented in elementary and middle schools to prevent information dysfunction in Korea. Now, most schools enact information communication ethics or internet ethics education. According to a study focused on schools and the government, as well as families and society, people feel the need for teenagers to be educated in terms of Internet ethics [3]. Choi et al. applied media literacy, which is the ability to independently understand various types of media, to internet ethics education. In other words, they presented a teaching method where they teach students how to correctly use the internet, rather than completely blocking the internet from students. They wanted to promote the positive side of the internet by presenting this new and original method [4]. A study on the change of ethical consciousness after applying the learning model through discussion and writing based on problem-based learning (PBL) to Internet ethics class was conducted [5]. The study also showed that there is a statistically significant improvement in autonomy and responsibility areas. In addition, the results of the t-test showed that there was a significant effect on both the thinking and the attitudes toward the information communication ethics of the experiment group in the study on the information communication ethics teaching method through the UCC production project class [6]. Ju et al. analyzed the educational performance of 708 middle school students in Korea through a study on Internet media education through video UCC production and utilization, finding that education was effective in terms of internet use efficacy and utilization ability [7].

In this paper, college students take Internet ethics lectures and build a team to produce a UCC of a current topic related to Internet ethics. The levels of UCCs produced by university students who collected data and edited their video recordings are clearly differentiable from [6] and [7]. They used software such as Windows Movie Maker, Sony Vegas, and Adobe Premiere during the editing process. Students can enhance their understanding of Internet ethics through the group project experience of making a UCC. It is much more effective to create a UCC, as the proverb says: actions speak louder than words.

Internet ethics education has been performed globally. Dadzie gave an overview of the various aspects of the subject. He recommended both the introduction of an information ethics course and a standalone course covering plagiarism and SNS abuse as university required courses at the department of information studies in Ghana [8].

In addition, there are some studies that analyzed the effects of using SNS in education. J. Lee et al. analyzed the educational effects of using SNS on middle school students. The conclusion of this research was that SNS could be applied not only to subject education but also to various learning activities, suggesting that it was necessary to find appropriate ways to utilize SNS for educational purposes [9]. There was also a work that explained the causes of cyber plagiarism, which was the most frequent among unethical behaviours that occurred in cyberspace, based on the motivation theory for 564 social media service users [10]. The development of information and communication technology (ICT) in the era of the 4th Industrial Revolution has also influenced the interactive education between the professor and student. Online education systems for the public, such as educational broadcasting or MOOC, are also being settled. The first author of this paper also developed a course on internet ethics for university students in KOCW's Korean MOOC site in 2016 [11]. In Georgia, research has also been conducted on the Learning and Teaching Process of Using Internet and Computer Technologies [12].

The contents of the Internet ethics course for Korean college students cover various topics such as Internet and daily life, legal problems such as copyright infringement and defamation, personal information infringement, harmful information circulation, cybercrime in the age of AI and information security including hacking and malicious code [13]. On the other hand, U.S. universities are giving lectures on professional ethics for university students and graduate students in computer-related departments that will grow as future computer experts on computer ethics. The Internet ethics textbook [14] used in the United States covers topics such as personal privacy, freedom of speech on the Internet, intellectual property rights, cybercrime, technology assessment and control, ethics and responsibility of computer experts. In the United States, they are promoting computer ethics awareness among computer professionals and those working in the computer field through the software engineering code and the ACM code for ethics and professional practice. On the other hand, in Korea, it is understood that the aim is to learn the overall topics of internet ethics of general college students and adults and to develop sound internet citizenship through them. In this research, we focus on the latter and present a method to improve the effectiveness of Internet ethics education for university students.

3. Understanding and practicing Internet ethics

We have conducted a demonstration practice classroom teaching method that explains the topic description with the pre-collected video files related to the internet ethics class. This video demonstration-practice class method has been confirmed by the lecture evaluation of students at the end of semester that students' understanding of Internet ethics class and their satisfaction for the class are improved [15]. However, the videos produced in the past seemed to reduce student interest and lack of subjective learning effect. Therefore, we felt the necessity of research, studying the effect of a team-based project involving making an Internet ethics UCC, on student learning effect. Previous work of the authors involved a project-based learning method for students to design a topic of interest, create a storyboard for the topic, and produce a UCC that describes the learning effect of the team project [16]. At this time, the authors surveyed the students

and analyzed the responses. After conducting a survey analysis, it became clear that the learning effect is increased, and the understanding of the class is improved by conducting the learner participatory practice lesson where the students construct UCC directly in contrast to the Internet ethics class of simple video viewing method [16].

From now on, we will explain in detail the lessons of Internet ethics and the improved teaching method for daily practice. On the first introduction lecture, the instructor explains the contents of the Internet ethics class, the learning method, the lecture schedule, the evaluation method, and the semester team project assignment to the students taking the course. In particular, the instructor informs the students a term report about making a UCC about Internet ethics and describing the effect of internet ethics practice on UCC production experience as a semester project. It is the core subject of this research. After the introduction lecture, around 10-20% of the students who had difficulty in the term project cancelled the class. It is difficult to produce the UCC by oneself. Thus, the new method involved forming groups of three, making a UCC production scenario, a UCC production, and a practical effect report. Because groups are kept small at three people working per team, the burden on the students to perform the project is reduced, the level of the work is maintained, and the likelihood of the presence of a free rider, a teammate that does not contribute to the team, is reduced. In some cases, two people were allowed to perform the task. However, when four or more students form a team, they were notified that they would be deducted 1 point from their acquisition score. Therefore, we managed to meet the basic objective of fair credit evaluation by avoiding free riding students who do not work hard.

The title of the assignment in the class was "to select one of the topics related to internet ethics, to make a video about it, and to write a report explaining its daily practice effect". Students felt it more difficult to reflect on the practical effects of the project in their life than making UCC. In the practical effect reflection section, students were instructed to describe their knowledge of real issues of Internet ethics and reflect on what they learned from their participation in the Internet ethics UCC production project as well as how they will take what they have learned to their daily lives as a result. At this time, if the length of the video is too long or short, it is thought that the evaluation is confusing, and a deduction according to the deviation from a certain range based on about 2 minutes is given. In the classes conducted by the authors, the grading criteria as shown in Table 1 was presented and referenced to the students' tasks.

Figure 1 shows the difference between the existing Internet ethics teaching method and the proposed class model. The conventional Internet ethics class is explained in oral form based on the lecture notes prepared by the instructor, and if necessary, related videos are watched. The proposed method in this research is a model that performs the existing method shaded in Figure 1 and additionally performs the following task. Students will be able to share the experience of making their own work and raise their awareness of copyright infringement by conducting Internet ethics UCC tasks as a team project and publicly presenting them at the end of the semester. In addition, by writing a report that practices the experience of UCC production in daily life, it is a teaching method that has the effect of education that conforms to the character of ethics subject, not just theory acquisition but practice. As we all know, the knowledge and information society require the ethical consciousness of human beings to properly produce, distribute, circulate and use information. In this class, we will contribute to achieve the objective of explaining the various ethical issues arising in the fourth industrial revolution society based on AI and acquiring the norm system for solving them easily. In this class model, we aim to contribute to achieving the purpose of helping students to understand the various ethical issues arising from the fourth industrial revolution society based on artificial intelligence, and to help students acquire the norm system for solving them.
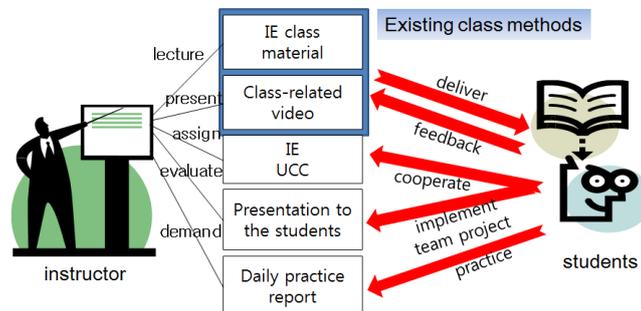

Fig. 1: Internet ethics class model compared with existing methods

The subjects of this work are the students from class A in the first semester of 2017 and class B in the second semester of 2017. In class A, 28 teams submitted the assignments, and in the B class, 22 teams submitted the assignments. We describe the research work presented with four examples, two of most well written, chosen from each class among the UCC content and daily action reports submitted by many students. Instructors in class A and class B were the authors of this paper, and individual lessons were made by different instructors for students whose departments were different. In this paper, we try to supplement the validity of the work by explaining some cases of UCC. Video cases allow people to better understand Internet ethics than texts or documents. In addition, students can improve their understanding of Internet ethics by making UCC rather than simply listening in class.

The instructor of class A summarizes two team projects and examines key issues, focusing on the contents of copyright infringement team project and internet addiction team project.

Case 1: UCC on copyright infringement subject

This team is made up of three IT major students, and the title of the project is 'study copyright infringement through cases'. The motivation for selecting the topic is increasingly infringing on the copyright that comes online with the advent of the digital era, and the distribution and creation base of related industries such as music, movies, publishing, and games are breaking down through illegal copying. The purpose of this UCC is to inform the seriousness of copyright infringement and punishment standards. The story of the work begins with a brief introduction to copyright and describes four recent copyright infringement cases including the illegal downloading of movies, copyright infringement by marketing using game characters, the unauthorized use of certain fonts in the university, and intensive enforcement for the recent torrents and web hard sites by government agencies. For each case, the students gave specific details such as the type of copyright violation and the amount of damage and gave a warning to the other students who were not familiar with or violated copyright infringement in their daily lives. Finally, the UCC asks viewers if they still want to violate copyright.

After the presentation, some of the students who watched the video said that they were also involved in the cases announced by the production team. The crucial learning effect of this work from the students watching the case video is that the students will be more careful not to infringe the copyright in the future and recognize the importance of internet ethics education. The characteristics of this team are

that they have selected a topic of copyright infringement that may be of interest to the audience, and that they have used the most recent examples. In addition, the students who produced the video have demonstrated a clear understanding of the limitations of the copyright they have learned in the class by clarifying the source of the YouTube video referenced for UCC production. In comparison with non-major students, the perception of copyright of IT majors was stronger than that of their non-major students. The copyright awareness of IT majors was found to be more aware of copyright infringement when considering their future professional career and expected salary than IT non-major students.

Case 2: UCC on internet addiction subject

The team is composed of two students who are IT non-skilled students and the title of the work is 'Internet addiction, all together prevent it!'. The motivation for topic selection was to explain what internet addiction is in a situation where the number of people who are addicted to internet games is increasing and to make a video to see what is a way to prevent internet addiction. The story of the work is that a man is worried about a girlfriend who cannot get in touch nowadays, and he goes to his girlfriend's house and finds out the girlfriend who is crazy about the game. The man tells his girlfriend that internet addiction is a dangerous mental illness, and also tells the definition, cause and symptoms of internet addiction. Next his girlfriend asks if there is a way to prevent internet addiction. The man tells her how to prevent Internet addiction and ends up with a commitment to stop the Internet addiction.

It is the learning outcome of this work that students have learned the exact definition and causes of Internet addiction and its symptoms, and how prevalent it is in daily life. In addition, the team students were able to express their step by step internet addiction and detailed symptoms of internet addiction through their own cartoon. The characteristic of this work is that students directly express the contents related to the UCC topic in cartoon style. It is not as wonderful as a cartoonist, but it has the advantage that it is easy to watch and understand the students who watched the video by expressing contents related to internet addiction creatively. Figure 2 shows the UCC video capture screen of Case 2 related to Internet addiction. The image on the left in Figure 2 shows the three stages of Internet addiction, Internet gratification, surrogate satisfaction through the Internet, and escape from reality in the form of not only explanation but also cartoon. The image on the right shows the situation of game addiction, one of the Internet addiction as a cartoon style too.
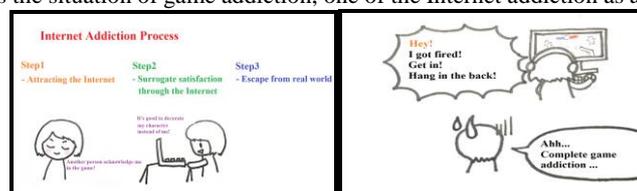

Fig. 2: Addiction process and addiction cases of internet addiction

The instructor of class B of the second semester of 2017 will describe students' reports and discuss key issues, focusing on the content of cybercrime project and information provider ethics project.

Case 3: UCC of cyber-crime theme

The team consists of two IT major students and their project title is Internet fraud - voice phishing. The motivation for selecting the topic is that as the ICT have evolved recently, the voice phishing technique has been developed day by day and the cases of damage have been increasing accordingly. From June 2006 to June 2015, there were 57,251 cases of voice phishing in Korea for 10 years, and the amount of damage was estimated to reach 641.8 billion won. Voice phishing, which has been continuously increasing, turned to a decline in 2012 due to efforts to prevent damage such as enforcement of the international mobile phone display service, the promotion of damage prevention advertisement, and the establishment of a system to prevent the opening of bank accounts for others. However, in 2014, the number of incidents increased again, indicating a 60.2% increase year-on-year [17]. As a result of this voice phishing damage situation, it was very important to share and learn about prevention methods of voice phishing. The video that the students produced first evokes the awareness of viewers by presenting the damage situation of voice phishing. And it introduces the definition of voice phishing and explains how to use Korea National Tax Service taxation fraud scam method, the card overdue and steal method, the false kidnapping threat method, and the threat that your bank account is involved in a crime. In addition, seven kinds of prevention policies of voice phishing learned in class are presented. Finally, it shows the ending subtitle 'You are not an exception' to give the alert of voice phishing damage.

The students thought that the victims of voice phishing might be the old and parents who have children. Since most young people know the concept of voice phishing, the students themselves think they will not get caught up in voice phishing. However, in carrying out this UCC assignment, they learned that the technique of voice phishing is not as simple as it should be, and eventually it is evolving, and even the highly educated young students are also victims to voice phishing. Owing to the experience and practice of this UCC production, while they previously already knew that voice phishing is harmful, students realized how detrimental voice phishing can be at a more practical level. Thus, they vowed to ignore the phone number of 070 that they do not know, and to ignore the case of inducing the use of the cash dispenser. By watching this team's report and video, the instructor believes that students will be able to practice how to avoid voice phishing in their life from the experience of making UCCs directly and have learned the practical effect of spreading awareness among family members and friends. The instructor also judges that the team has identified references to the relevant sections of the report and that students have been able to improve their ability to cite copyright.

Case 4: UCC of information provider ethics

This team is composed of 3 non-IT major students. The title of the work is Internet ethics education with Internet guardians, and its subtitle is the necessity of internet ethics education due to increase of single person's media. The motivation for choosing the topic is that the accessibility of the Internet is easier than in the past, and the age of Internet users is also gradually decreasing. Due to the emergence of an individual's media as one of the information media, both of indirect users who receive information over the internet and those who are directly involved in the activities of the Internet are increasing. There are various platforms known as YouTube, Africa, and Twitch for a single person's media in operation in Korea. Team members who participated in the project have used this media, and they like to frequently watch one person's social media feed. However, the students describe that the actual situation of single person's media they have experienced is different from the purpose of original media development, and that they have become aware of the fact that the broadcasting contents are harmful to the mental health of adolescents.

The story of the work selects two characters related to the Internet guardian, and makes the selected characters present the contents and examples focusing on the necessity of internet ethics education, especially single person's media (internet broadcasting). It starts with the introduction of character with light music. The subject to learn today is the necessity of internet ethics education, and it introduces the subject and knowledge about internet broadcasting. Student's UCC shows some news articles on the airwave channel pointing out prob-

lems related to internet broadcasting by several individual BJs and ends by explaining the rules to be followed by the internet broadcasting hosts and producers. Figure 3 illustrates two captured images from the scenes. The image on the left in Figure 3 shows that it will start to explain the problems of internet broadcasting, and the image on the right shows that the Internet BJs should listen to internet ethics training before broadcasting.
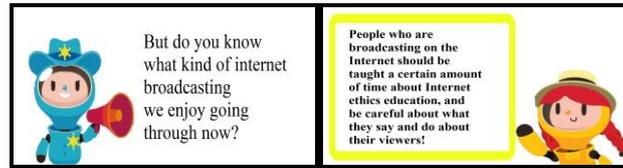

Fig. 3: The problem of Internet broadcasting and its solution

It is possible to distinguish the viewer side from the producer side by the practical effect in the life of this work. Students who watch the videos can recognize and recall the importance of internet ethics education. The students who made the videos themselves can investigate the internet ethics education, acquire background knowledge, recall the theoretical lessons learned during the lecture time, and have time to summarize and organize contents to be included in the UCC. The characteristics of this team are divided into the students themselves and the students to watch, and the team members describe the side effects of learning and the effects of the practice of Internet ethics. As Korean language department students have different characteristics than science and engineering students, the selection of the subject and the method of writing the report clearly showed the differentiating aspect.

As can be seen from the four examples of UCC production described above, the students who take part in the class think of it as a very easy-to-learn liberal arts course with the superficial aspect of the name of internet ethics. However, as students actually take lessons, they discover a few facts. First, students learned new lessons that they did not know while listening to theoretical lessons on a wide range of subjects related to Internet ethics. Second, by watching the Internet ethics-related videos provided by the broadcasting companies or produced by the individuals, the Internet ethics of the abstract concept is accepted as more specific facts, so that they seriously think about the internet ethics. Third, by building a team of students themselves to produce Internet ethics UCC videos, they will actively, learn first-hand about Internet ethics rather than passively learning. In particular, the authors believe that the last point of learning as a team is the most important contribution to this research of promoting the understanding of Internet ethics and raising awareness of practice by producing a video on Internet ethics as a team project.

In addition, this research work allowed students to verify their own copyright infringement on their own videos, and to write a report on the effectiveness of the term project to check their willingness to practice Internet ethics after producing the videos. As a result of these efforts, students' understanding of internet ethics has been improved as well as their willingness to practice in daily life, compared to the previous method.

Table 1: Evaluation criteria for UCC project

Evaluating items	Percentage
Idea's novelty to choose topic	10%
Scenario or story description	15%
UCC production level	50%
Logical explanation on learning effects and its willingness to practice	25%
Total	100%

The grading criteria shown in Table 1 are presented in the class for students so that assignments can be made. The items in Table 1 are the same as in the previous study [16], but the percentage of UCC production itself has been increased from 35% to 50% by changing the rating percentage. This is because some of the students in the previous lessons spent a lot of time and effort on producing the videos, complaining about the low weighted score of 35% [18].

In particular, there are a number of students who used a vast number of videos on the Internet to create UCCs. For example, there are some UCC projects that show some of the Internet-gathered videos, describe the problems of the themes, and develop ways to improve them. In past lessons, this method was allowed, but there were cases where the distinction between whether it was actually produced by the students or by other people on the internet was ambiguous. Although it is good for the instructor to find such a difference, there are limits to the difficulty of identifying numerous Internet ethics-related videos. In this work, students were asked to state in their report that their work was not in violation of copyright, and if they violated this guideline, they were notified that they would score 0 points. As a result of this announcement, a small number of teams in past classes didn't give the presentation and received 0 points for UCC production item. However, there were no teams in these two classes. Also, before the end of the semester, each UCC team briefly explained the subject of its work to all other students, and all the students watched it together. This has enabled the students to make themselves free from copyright infringement and improved cross-copyright checks. Through these team project presentations and discussions, students also had a meaningful time to share experiences on project topic selection and production experience.

4. Internet ethics class survey and analysis

The purpose of this research is to analyze the internet ethics UCCs and team project reports on its practice, which is submitted by 126 students who took courses in the first semester and second semester of 2017. First, 70 students in the class A in the first semester produced 28 UCCs and 4 teams received 100 points. In the class B in the second semester, 56 students performed 22 projects and 5 works were awarded 100 points. In the topic selection, the topics of internet addiction including SNS were the most, and there were many topics related to copyright infringement, malicious comment damage, and cyber-crime. We presume that students selected these topics based on the issues that they most frequently encounter on the Internet. Many students do not have sufficient internet ethics knowledge and often ignorantly partake in unethical behaviors on the Internet. As well, scamming such as voice phishing is a ubiquitous issue that students want to protect themselves from.

We will conduct statistical analysis on the question items of Table 2 for 98 students who submitted the survey among the 126 students who took the class A and the class B of 2017 year [18]. We have extended our previous studies by conducting survey analysis with detailed class description. In the class A, 49 students answered the questionnaire, and another 49 respondents submitted the questionnaire in the class B. The questionnaire was of course anonymous. Each answer has 5 scales such as 1(= Very Negative), 2(=Negative), 3(= Neu-

tral), 4(= Positive), and 5(= Very Positive). Statistical analysis is carried out by dividing into Class A for 49 students, Class B for another 49 students, and 2017 whole year with 98 students.

Table 2: Internet ethics questionnaire items for students

Question items
1. Do you think Internet ethics is an easy subject?
2. What was the level of understanding of Internet ethics before class?
3. What was the degree of understanding of Internet ethics after class?
4. Was the use of textbooks and handouts appropriate?
5. Has the use of ethics video (including UCCs from previous students) led students to pay attention to the class?
6. Did viewing the ethics video help you understand the Internet ethics concept?
7. Does the experience of UCC production according to UCC team project help to understand and practice Internet ethics concept?
8. Do you think the lecture is effective overall?
9. Will this lesson help you practice your future Internet ethics?

We first calculated the Cronbach's alpha value to perform a reliability analysis. Cronbach's alpha reliability analysis of the questionnaire responses was 0.837 (class A), 0.812 (class B), and 0.826 (2017 whole year) [18]. The reliability of the questionnaire is very high because the alpha value of Cronbach is more than 0.8.

Also, we performed frequency analysis for the survey using SPSS as follows. Item 1 is a question about the degree of difficulty of the Internet ethics course in the student's opinion. It is a measure of responding positively when considering Internet ethics is easy and responding negatively when thinking that it is a difficult subject. As a result, among the 49 students who took the courses in each semester, the frequency of 1 point of 'Very Negative' was 3 and 0, and the frequency of 2 points of 'Negative' was 6 and 4, the students who think that the course is easy are 40 and 45 out of 49, 80% (class A) and 90% (class B), respectively. From this response, most students think that the Internet ethics course will be easy as a simple theoretical course when they apply for the course. Table 3 compares the difference between the item 2, asking for understanding before the class (BC in Table 3), and the item 3, asking about the degree of understanding after the class (AC in Table 3). This table shows the analysis of each class and the results of the integration. The V means Very and RES represents Response in Table 3. GR means Group, A and B represent class A and class B, respectively in Table 3 too.

After the Internet ethics lesson, the frequency of negation is lowered and the responses for positive and very positive increased. It is considered that there is a positive response because the concept becomes easier to understand after watching the video of the UCC case along with the explanation of the Internet ethical theory during the class. In 2017, the total number of students who did not fully understand Internet ethics before the class was three, but it decreased to one after class, and the number of 'negative', which were not understood a little, decreased from 21 to 3 after class, which shows that understanding of internet ethics has improved greatly. Especially, the frequencies of 'positive' and 'very positive' shows more than twice that, which demonstrates that the understanding level of internet ethics before classes that was considered to be negative and neutral changed considerably positively after the class.

Table 3: Frequencies for questions 2 and 3

RES / GR	V. Neg.		Negative		Neutral		Positive		V. Pos.	
	BC	AC	BC	AC	BC	AC	BC	AC	BC	AC
A	2	1	11	2	23	13	9	25	4	8
B	1	0	10	1	23	16	13	25	2	7
Total	3	1	21	3	46	29	22	50	6	15

Item 4 is a questionnaire survey on the proper use of textbook and handouts. Among 98 students, 1 is very negative, 6 are negative, 34 are neutral, 41 are positive, and 16 are very positive. That means 57 respondents (58.16%) answered that they had used the textbook and handouts properly to understand the lecture contents. Item 5 was a question about how much use of ethics practice videos led to interest in the class. The proportion of 'neutral', 'positive', and 'very positive' among 98 respondents was 32.65%, 33.67%, and 25.51%, respectively. This means that more than 90% of respondents answered that watching the videos led to class interest. In the typical internet ethics course of hard texts and theoretical subjects, each student searches the news that recently happened, discusses with other students, and uses animation with various sound effects. The use of video on ethics practices would attract the students' interest and engagement in class. In addition, the videos of the ethics cases covering various topics and some novel ideas produced by the students of the same age seemed to induce the interest in the class more, helping to form a consensus. Item 6 is a question about whether viewing the ethics video helps to understand the concept of internet ethics. Among 98 people, one answered 'very negative', 3 'negative', 32 'neutral', 43 'positive', and 19 'very positive'. As in item 5, it can be seen that viewing the ethics video is very helpful not only in inducing class interest but also in understanding Internet ethics.

Item 7 is a questionnaire on whether the experience of UCC production by implementing a team project is helpful to the students' understanding of the ethics of internet. Table 4 shows the ratio of responses to the questionnaires of all students in 2017. In order to make team UCC, team members gather to decide related topics, search latest articles, and check whether there is a similar UCC produced before by searching copyright of similar videos. It is predicted that the understanding of the concept of Internet ethics will be expanded widely through accessing texts and multimedia of contents.

Table 4: Frequency and ratio of responses for question 7 in 2017

	V. Neg.	Neg.	Neutral	Pos.	V. Pos.
RES(%)	4(4.08)	8(8.16)	29(29.59)	40(40.52)	17(17.35)

Item 8 is a questionnaire on whether the lecture is generally effective. Among 98 students in 2017 classes, the sum of responses of 'very negative' and 'negative' was 6.1%, and the sum of 'positive' and 'very positive' was 62.2%, which means that the students who think this lecture is effective is about 10 times more than those who think of the lecture as ineffective. Finally, item 9 is a questionnaire asking whether this lesson will help students practice Internet ethics in the future. Table 5 shows the responses of students in each semester class in 2017. In response to this question, about 60% to 70% of students answered 'positive' and 'very positive'. It is believed that while listening to the lecture, students agreed on the importance of practicing Internet ethics while learning about various internet ethical topics and issues and will endeavor to conduct ethical behavior in the real world.

Table 5: Frequency and ratio of responses for question 9 in each class

	V. Neg.	Negative	Neutral	Positive	V. Pos.
A	2(4.1)	2(4.1)	15(30.6)	22(44.9)	8(16.3)
B	0(0)	1(2.0)	15(30.6)	24(49.0)	9(18.4)

In addition, the correlation analysis of the questionnaire items of Table 2 was performed for 98 students, and the results are shown in Table 6 [18]. First, when comparing the correlation coefficient between the items for class A students, the correlation coefficient between the items 9 and 8 is the highest with 0.826, and the next is the item 9 and the item 5 with the correlation coefficient 0.769. This means that interest in and confidence in the practice of Internet ethics in the future is due to effective Internet ethics lectures and watching the ethics practice videos. In addition, the correlations between items 7 and 6 of 0.755 numerically show that the UCC making experience for team projects and video viewing of ethics cases help to understand the concept of internet ethics.

When we compare the correlation coefficients between the items for the class B students, the correlation coefficient of items 7 and 6 is 0.734, items 9 and 8 is 0.685, and the correlation coefficients of items 9 and 7 are 0.664. In particular, the correlation coefficients of items 9 and 7 are relatively high, in relation to the correlation coefficient of items 9 and 5 of class A, and it was found that many students view that the experience of the Internet ethics production project will help them to practice the Internet ethics in the future.

In the case of the entire body of students from 2017, the correlation coefficients of items 9 and 8 are 0.768, items 7 and 6 are 0.741, and items 9 and 5 are 0.682. Therefore, items 9 and 8 and items 7 and 6 are close to each other. In other words, the effectiveness of the lecture helps students to practice their future Internet ethics, and it is helpful to understand the concept of internet ethics by using UCC production experience and watching video of ethics cases.

In addition, further analysis is necessary for deducing why there is a slight difference in the correlation coefficient between class A and class B. In class A, there were 46 IT major students and 24 non-IT ones among the total 70 students. In class B, there were 44 IT students and 12 non-IT ones. The number of IT majors in the two classes is similar, but there is a difference by about a factor of two in the non-IT majors. We estimate that this difference may have produced a slightly different result. This issue should be analyzed in a future work by modifying the questionnaire item to check which major or minor the student is pursuing in the new survey.

5. Conclusion

In this research, students were instructed to autonomously form a team to produce a UCC on Internet ethics and to write a report describing the practical effect. The purpose of this was to confirm that the concept of Internet ethics was better understood understood and the practice aided in bringing about consciousness of Internet ethics topics to students. As a result of analyzing the questionnaires collected by the students, it was confirmed that the proposed method contributes to students' understanding of Internet ethics and improvement of their willingness to practice. We also found that the correlation coefficient of each item varies slightly by class. This is estimated to be different depending on IT majors and non-majors, but this should be clarified later in further investigations. In particular, at the end of the semester, a video demonstration was held to provide students with the opportunity to explain their work to the other students, and to watch the presentation of the other teams. In addition, copyright infringement verification was conducted to reduce the burden on the instructor and contribute to fair credit evaluation. The results of this research confirm that it is necessary to clearly distinguish the role of each team member in forming a team for UCC production. In particular, team leaders need to play a role in selecting UCC topics, collecting data sources, designing scenarios, and distributing tasks among team members. IT majors are familiar with the use editing programs, but non IT majors are likely less familiar with the software. Therefore, instructor guidance is necessary when forming teams to include one IT majors in each team.

In the future, we will analyze the questionnaires collected from the students in more detail and find improvements in the classroom. We also need to take a closer look at what students consider when choosing a topic. In next year's class, students would listen to the KOCW internet ethics video course, which was produced by the first author before class. Then students will have a discussion or quiz time of about 5-10 minutes to check the contents of the video as an attempt to flip the standard method of learning. In the rest of the class, instructors plan to conduct a flipped learning class method to conduct discussions on this, and to run a curriculum in accordance with ethical characteristics.

Acknowledgement

Table 6: Correlation according to Internet ethics questionnaire items by semester in 2017

Semesters	Items	Item1	Item2	Item3	Item4	Item5	Item6	Item7	Item8	Item9
2017 First Semester (class A)	Item1	1.000								
	Item2	.030	1.000							
	Item3	-.075	.363	1.000						
	Item4	-.154	.533	.497	1.000					
	Item5	-.065	.577	.210	.626	1.000				
	Item6	-.125	.147	.117	.388	.566	1.000			
	Item7	-.202	.290	.349	.579	.586	**.755**	1.000		
	Item8	.049	.596	-.008	.673	.707	.391	.452	1.000	
	Item9	-.061	.458	-.007	.639	**.769**	.362	.419	**.826**	1.000
2017 Second Semester	Item1	1.000								
	Item2	.087	1.000							
	Item3	-.133	.477	1.000						

(class B)	Item4	.053	.448	.245	1.000				
	Item5	-.077	.311	-.037	.568	1.000			
	Item6	-.102	.316	.244	.493	.578	1.000		
	Item7	-.122	.334	.098	.526	.585	**.734**	1.000	
	Item8	-.276	.419	.207	.605	.596	.649	.662	1.000	
	Item9	-.111	.268	.192	.516	.579	.553	**.664**	**.685**	1.000
2017 Whole Year	Item1	1.000							
	Item2	.047	1.000						
	Item3	-.107	.408	1.000					
	Item4	-.045	.499	.390	1.000				
	Item5	-.069	.464	.098	.600	1.000			
	Item6	-.113	.214	.173	.432	.571	1.000		
	Item7	-.148	.300	.228	.551	.585	**.741**	1.000	
	Item8	-.118	.530	.082	.646	.657	.498	.541	1.000	
	Item9	-.095	.393	.078	.588	**.682**	.440	.514	**.768**	1.000

References

[1] NIA, Request for Proposal on the Internet Ethics Education Satisfaction and Change of Consciousness and Behavioral Style. (2018).

[2] B. Courts and J. Tucker, "Using Technology to Create a Dynamic Classroom Experience," Journal of College Teaching & Learning. Vol.9, No.2, pp. 121-127. (2012).

[3] J. Son and Y. Bae, "Direction of education for Internet ethical education," Proc. of Fall Conference, Korea Multimedia Society, pp. 509-510. (2010).

[4] J. Choi, M. Lee, and Y. Son, "Media Literacy as an internet Ethics Education Methodology," Proc. of Spring Conference, Korea Information Processing Society, pp. 1563-1566. (2011).

[5] J. Park and O. Kang, "An Internet Ethics Learning Model based on PBL," Journal of Korean Association of Computer Education. Vol.15, No.2, pp. 29-36. (2011).

[6] S. Han, Research for The Information and Communication Ethics Education Model through The Project Instruction using UCC (User Created Contents), Master Thesis, Korea National University of Education (2009).

[7] Y. Ju, Y. Hwang, Y. Kim, and Y. Cho, "The Analysis of Internet Literacy Effect through Education of Producing and Using Multimedia UCC," Journal of Korean Association of Computer Education. Vol. 13, No. 4, pp. 27-39. (2010).

[8] P. S. Dadzie, "Rethinking information ethics education in Ghana: Is it adequate,?" The International Information & Library Review, Vol.43, No.2, pp. 63-69. (2011).

[9] J. Lee, Y. Lee, and M. Kim, "Perceptions of Teachers and Students towards Educational Application of SNS and its Educational Effects in Middle School Class," The Turkish Online Journal of Educational Technology. Vol.14, No.4, pp. 124-134. (2015).

[10] S. Kang and S. Han, "The Effect of Motivation on Cyber Plagiarism in Using Social Media: The Focus of Subjective Norm's moderating Effect," Journal of the Korea Academia-Industrial cooperation Society. Vol.17, No.6, pp. 300-307. (2016).

[11] J. Kim, Collegian Internet Ethics course, KOCW (Korea Open Course Ware), http://www.kocw.net/home/search/kemView.do?kem Id=1184850&ar=relateCourse. (2016).

[12] D. Geladze, "Using the Internet and Computer Technologies in Learning/Teaching Process," Journal of Education and Practice. Vol.6, No.2, pp. 67-70. (2015).

[13] Korea Society of Security Ethics, Internet Ethics in the Age of the Fourth Industrial Revolution. Ehan Media, Gyeonggi-do, Korea (2017).

[14] S. Baase and T. M. Henry, A Gift of Fire: Social, Legal, and Ethical Issues for Computing Technology, 5th ed., Prentice Hall (2017).

[15] J. Kim and H. Kim, "Case Study of Internet Ethics Lecture using Videos and Demonstration Practice," Journal of Korean Association of Computer Education. Vol.16, No.3, pp. 23-30. (2013).

[16] J. Kim and H. Kim, "Improving Internet Ethics Understanding by Making Related UCCs," Journal of the Korea Industrial Information Systems Research. Vol.20, No.3, pp. 1-9. (2015).

[17] Police Science Institute, Police Outlook 2016, Police Science Institute, pp. 143-145, Chungnam-do, Korea (2015).

[18] J. Kim, H. Kim and S. Kim, "A Study on Understanding Internet Ethics and Improving Practice by Making UCC," International Journal of Hybrid Information Technology. Vol.11, No.2, pp.1-6. (2018).