

The Learning Achievement and Satisfaction of the Second Year Communication Arts Students at Songkhla Rajabhat University in Using the *Kahoot!* Application for the *Mass Media Ethics* Course

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Abstract

The present research aims to 1) study students' learning achievement before and after using the *Kahoot!* application in the *Mass Media Ethics* course, and 2) to find out students' satisfaction towards using the *Kahoot!* application in the *Mass Media Ethics* course. Participants in this research study were 38 undergraduate students who studied in the *Mass Media Ethics* course. The instruments used to collect data were: 1) the achievement test after using the *Kahoot!* application, 2) the test to measure students' knowledge and understanding towards the content, 3) an application evaluation form and a 5-rating scale questionnaire asking for the students' satisfaction after using the *Kahoot!* application, and 4) a questionnaire asking for the experts' satisfaction of the *Kahoot!* application evaluation form.

The findings are as follows:

1. The students' learning achievement after using *Kahoot!* in the *Mass Media Ethics* course was higher than before using *Kahoot!* (an increase from 58.77 to 66.93%).
2. The students were satisfied with using *Kahoot!* in the *Mass Media Ethics* course with the mean score of 4.65 (\bar{X}), which is at the highest level.

Most of the students suggested that the *Kahoot!* application should be frequently used in the class. It is also recommended that the instructor and students should cooperatively develop or choose the which applications to use for instructional purposes.

Keywords: *Kahoot!* application, Learning achievement, Satisfaction, *Mass Media Ethics* course.

Introduction

The advancement of communication technology in today's world has changed the pattern and role of news presentation. In the past, the news was mostly reported through the main media channels such as newspapers, radio and broadcasting, and television. Online media channels or social media, such as *Facebook*, *Line*, *Twitter*, and *Instagram*, which are very responsive to the needs of the audiences, are becoming more popular. The news presentation in the digital era, however, can potentially create misunderstandings and errors as the media

compete to be a leader and the fastest press in reporting news. This can lead to a lack of morality and media ethics eventually causing an impact to the public (Diawkee, 2016).

While, the research about behaviors in *Using Social Media of Students* looking at social media usage behavior of teens using social media from 8 p.m. to 12 a.m. found that 87% used their mobile device to go online. The main activities on social networks are chatting and social networking. The most popular social media platforms that the teens in this study accessed were *Facebook* and *Line*. The impact of using social media on the sample found that students were able to discuss subjects with the teacher through chat, use the social media platforms to learn more outside of the classroom lessons, and develop various skills such as cooking, doing make-up, and styling hair, from viewing video clips on *YouTube*. Those in the sample were also able to meet more new friends online, stay in touch with friends or relatives far away, and have other experiences from the social media platforms that made it possible to learn and adapt to society. (Klinlekha, 2017)

From the above phenomenon, the patterns and teaching procedures in the *Mass Media Ethics* course for the students in the Communication Arts Program at Songkhla Rajabhat University has been adjusted in order to respond to the current situation. The students are taught intensively about the morality and media ethics in each professional field so that they are able to analyze the situation of news presentation according to current morality and media ethics. Moreover, they are instructed to be able to analyze the current context of technological advancements of news presentation which has factors in both business competition and time to determine the direction which is most responsible for society.

Previously, *Mass Media Ethics* has been taught through traditional teaching methods using lectures and case studies. This sometimes does not gain much attention from the students because most content is theoretical knowledge and the case studies of the media situation may be out dated. Therefore, the researcher as a course instructor for *Mass Media Ethics*, realizes that the current development of information technology for education is becoming increasingly important. This is because education is not just confined to the classroom but students are able to search for knowledge on their own through the use of information technology in various ways. In other words, technology is now considered one of the vital factors in modern education. For this reason, the *Kahoot!* application was utilized as a teaching tool in which the students were able to test their knowledge before and after learning through the application on their own smartphone.

Kahoot! is a free game-based learning platform using educational technology. It was launched in August 2013 in Norway with currently over 50 million players in 180 countries. *Kahoot!* is designed to be easily accessible in the classroom and different learning environments around the world. Everyone is allowed to create learning games on *Kahoot!* without age or topic restrictions. *Kahoot!* can be played through various devices such as personal computers or portable computers including smartphones via a web browser. Thus, many instructors nowadays utilize *Kahoot!* in the classroom (Siritanadeepun, 2017). When students enter the *Kahoot!* game, it will show the number of game participants. It also displays answers of the participants and ranks them immediately after answering the questions and when finishing the game. *Kahoot!*, hence, is a tool for evaluation through answering questions in

multiple-choice tests by showing the questions in front of the class and asking the players to choose an answer on their computer or smartphone (Buangam, 2016).

Therefore, adjusting the teaching method after studying the learning achievement and satisfaction in using the *Kahoot!* application in the *Mass Media Ethics* course of the second-year students in the Communication Arts Program, Faculty of Management Sciences, Songkhla Rajabhat University will stimulate students' interest and understanding regarding the main concepts of the subject. It also helps create fun challenges when competing with classmates. The results of the test before and after using *Kahoot!* will help assess the students' knowledge whether they understand the content. Furthermore, the results of the satisfaction evaluation of the *Kahoot!* application will be a guideline for adjusting teaching style in other courses in the Communication Arts program.

Purposes of the study

1. To study students' learning achievement before and after using the *Kahoot!* application in teaching *Mass Media Ethics*.
2. To study students' satisfaction towards learning *Mass Media Ethics* by using the *Kahoot!* application.

Research hypothesis

Students' achievement before and after using the *Kahoot!* application in learning *Mass Media Ethics* will be different.

Literature review

From the above evidence, it can be concluded that most of the students are satisfied with using the *Kahoot!* application in learning about Mass Media Ethics because *Kahoot!* can create content that is easier to understand. Additionally, *Kahoot!* includes interesting characteristics such as questions, colors, symbols, and a timer. These reinforce the students' determination in answering questions as the person who can most quickly answer will be in the highest rank which contributes to full participation and enthusiasm. For this reason, it can be stated that *Kahoot!* is very useful for teaching and learning, particularly in theoretical subjects because it can improve students' motivation. Corresponding to the study done by Onthaisong et al. (2018) *The Effect of Kahoot learning media on achievement of reviewing test in Gerontological nursing subject*, the findings showed that the comprehensive test score of the students after they reviewed through *Kahoot!* was higher than before using *Kahoot!* at a statistically significant different level of .05 ($p < .05$). It can be concluded that using *Kahoot!* can increase the effectiveness of reviewing for comprehensive tests in the *Elderly Nursing* course. It is suggested that *Kahoot!* should be used as a teaching tool to review the subject content before taking a comprehensive test in other Nursing courses. Chakornjirakiat (2015) investigated *The Use of Game Tester to Compare Satisfaction in Computer Programming Basics Exam between Using Kahoot! and Regular Exam of Year 2 Diploma of Business Computer Program Students, Vanit Business Administration Technological College*. Results showed that there was a statistically significant difference at .05 between using *Kahoot!* to prepare for regular exams in a *Basic Computer and Programming* course. The satisfaction towards using *Kahoot!* was at a good level also when Siritanadeepun

(2017) examined the *Result of using activity with Kahoot learning application for improving makin sentences in Pratomsuksa 1 students of Demonstration School of Suan Sunandha Rajabhat University*. The results revealed that the efficiency of improving students' ability to make sentences through learning management plans by using a set of activities in conjunction with *Kahoot!* The improvement of *Prathomsuksa 1* students of the Suan Sunandha Rajabhat University was effective according to the criteria 83.28/85.00 which was in accordance with the specified criteria at 80/80. It indicated that the students' knowledge increased at 0.6980 equivalent to 69.80%. There was also a statistically significant difference of 0.05 in the students' ability in making sentences before and after using *Kahoot!* Another study done by Fuinlong (2014) entitled *The Student' Attitude Enhancement by Group Activities in the COM 211: Laws and Ethics of Mass Communication course*, Rangsit University had an objective to develop the learning attitude of students in the *Law and Ethics of Mass Communication* course that most students agreed was a very complex and difficult to understand topic. Tutorial activity was used as a learning supplement for those who had low scores, whereas those who had high scores were asked to voluntarily participate as a tutor. It was found that group activities can encourage students to learn from their peers and these can also increase students' sense of responsibility. Most of the participating students showed a lot of enthusiasm while doing activities. The results of using group activities reflected that more than half of the students in the class had a good attitude at a moderate level in the *Law and Ethics of Mass Communication* course, which is viewed as an important topic of study for communication arts professionals. It can be seen that using the *Kahoot!* application as an instructional tool can encourage the students to have higher learning achievement. Students are also generally interested and satisfied with their studies through the *Kahoot!* application because it provides students with a fun atmosphere and challenges through competition. This can build a positive attitude towards teaching and learning in theoretical subjects. The researcher considers that the application can also be utilized in teaching and learning in various subjects.

Another similar study was conducted by Iwamoto et al. (2017) entitled *Analyzing the Efficacy of the Testing Effect Using Kahoot!™ on Student Performance*. Lower than expected high-stakes examination scores were being observed in a first-year general psychology class so this research was done to seek an alternate approach that would assist students in preparing for these high-stakes examinations. The purpose of this study was to measure the effectiveness of an alternate teaching approach based on the testing effect to address low high-stakes examination scores. This was accomplished through the introduction of an online quizzing application that utilized a game show-like user interface called *Kahoot!™*. The results showed a significant difference in high-stakes examination scores for students who utilized *Kahoot!™* versus students who did not. It can be suggested that pedagogical tools like *Kahoot!™* have the potential to enhance and improve high-stakes examination scores at the college and university level. Students that used *Kahoot!™* felt positive about their experience. The results of this study also suggest that creating a fun and engaging environment also supports improved academic performance. There are many examples on the use of game-based learning in and outside the classroom, along with evaluation of their effect in terms of engagement, learning, classroom dynamics, concentration, motivation and enjoyment. Most of the research in this area focuses on evaluations of the use of game-based learning applications and the effect they have on the students. The majority of these papers show that game-based learning has a positive effect compared to more traditional learning methods.

However, there are very few papers that investigate what specific elements in game-based learning applications produce a positive effect. In this paper, we present an experiment where we investigated how the use of points and audio affect the learning environment. Specifically, this paper presents results from an experiment where the same lecture was taught for different groups of students using the game-based learning platform *Kahoot!*. One group used *Kahoot!* as it supposed to be used with audio and points, one group used *Kahoot!* with audio but without points, one group used *Kahoot!* without audio but with points, and one group used *Kahoot!* without points and without audio. The results from the experiment reveal that there are some significant differences whether audio and points are used in game-based learning in the areas of concentration, engagement, enjoyment, and motivation. The most surprising finding was how the classroom dynamics were positively affected by the use of audio. A total of 593 students participated in this experiment with a gender distribution of 44% female and 56% male students.

Research methodology

1. Research limitation

1.1 The population were 693 second-year students from the Faculty of Management Sciences (Source: Office of Academic Promotion and Registration, Songkhla Rajabhat University in the academic year 2018)

1.2 The sample of this research was 38 second-year students majoring in Communication Arts, Faculty of Management Sciences, Songkhla Rajabhat University who enrolled in the *Mass Media Ethics* course in the 2nd semester of academic year 2018.

1.3 There were two variables in this study:

The independent variable is using *Kahoot!* application. (Before and after)

The dependent variable is learning achievement in the *Mass Media Ethics* course obtained from pre-test and post-test test scores and also students' satisfaction in using the *Kahoot!* application.

2. Research procedure

To achieve the research objectives, the researcher has created a research instrument as the following steps:

2.1 The application, *Kahoot!*, covers *Mass Media Ethics* content for students in the Communication Arts, Faculty of Management Sciences, Songkhla Rajabhat University with a teaching period of 3 hours per week for 3 weeks. The content was divided into 3 units:

- 1) Morality and ethics of radio and television broadcasting
- 2) Morality and ethics of film production professions
- 3) Morality and ethics of advertising and public relations professions

2.2 The students' knowledge and understanding test of *Mass Media Ethics* comprised of 30 items, specifically 10 items from each of the 3 units, and each having 4 multiple-choice answers. The students were required to select only one correct answer.

2.3 The *Kahoot!* application assessment questionnaire and the 5-rating scales satisfaction questionnaire on using the *Kahoot!* application in *Mass Media Ethics* of the second-year students of the Communication Arts program, Faculty of Management Sciences, Songkhla Rajabhat University.

The questionnaire consisted of the following scales: “very much”, “much”, “moderate”, “less”, and “least”.

2.4 Satisfaction questionnaire towards using *Kahoot!* application and the *Kahoot!* evaluation form about *Mass Media Ethics* teaching of second-year students in Communication Arts program, faculty of Management Sciences, Songkhla Rajabhat University rated by three experts in the Communication Arts field.

To determine the quality of the instruments used in this study, the IOC with over 0.5 value were piloted with 30 second-year students in the Communication Arts program, who are not the target group of this research to find out the confidence value of the satisfaction questionnaire. Results were then analyzed to examine the reliability by means of the Cronbach’s alpha coefficient (Atchanakul, 2015). The reliability value was found at 0.84.

3. Data collection procedure

The researcher collected the data through the following procedures:

3.1 The sample group was clarified in *Ethics of Communication Arts, Mass Media Ethics*. The students were asked to access the *Kahoot!* application through their own smartphone.

3.2 Electronic devices, such as computers, were prepared that could connect to the Internet and the *Kahoot!* application.

3.3 The pre-test was distributed to examine students’ knowledge and understanding in *Mass Media Ethics* before using the *Kahoot!* application. The test had 30 items, each with 4 multiple-choice questions. The students were required to select one correct answer. The tests were collected when the time allocated (30 minutes) was over.

3.4 After taking the test, the researcher gave suggestions to the students about how to use the *Kahoot!* application.

3.5 The researcher started using the *Kahoot!* application to teach students, one topic per week. Each topic contained 10 test questions with 30 seconds allocated for each response. When the correct answers were revealed, the researcher provided more explanation for each item. In case students did not understand any content while studying with the *Kahoot!* application, they could directly ask the researcher or the instructor. The students’ behavior while studying with the *Kahoot!* application was also observed.

3.6 In the last week of the course, the students were required to test their knowledge and understanding on *Mass Media Ethics* with the same test set as the pre-test. They were asked to complete the test within 30 minutes. After taking the test, a copy of the satisfaction questionnaire on using *Kahoot!* and application assessment questionnaires were distributed to the students.

4. Data analysis

Frequency, percentage (%), mean (\bar{X}), and standard deviation (SD) were employed to analyze data.

Results and discussion

1. The learning achievement after using *Kahoot!*

The learning achievement after using *Kahoot!* application in *Mass Media Ethics* course of 38 second-year students in Communication Arts program, Faculty of Management Sciences, Songkhla Rajabhat University by comparing the percentage of the average score between pre-test with post-test is reported below.

Table 1 Percentage after comparing the students' learning achievement after using *Kahoot!*

Score	N	Total Score	Test Score	Percentage (%)
Pre-test score	38	30	670	58.77
Post-test score	38	30	763	66.93

Table 1 showed that there was an improvement in achievement between pre-test and post-test scores of 58.77/66.93 after using *Kahoot!* in the *Mass Media Ethics* course. It can be concluded that teaching with *Kahoot!* can increase students' understanding in the *Mass Media Ethics* course.

2. Results of the *Kahoot!* application assessment and students' satisfaction

The results of the *Kahoot!* application assessment and students' satisfaction in using *Kahoot!* in the *Mass Media Ethics* course of second-year students in Communication Arts program, Faculty of Management Sciences, Songkhla Rajabhat University is illustrated in Table 2, Table 3 and Table 4 below.

Table 2 Basic Information of the Students

Variable	Number	Percentage (%)
Gender		
Male	10	26.32
Female	28	73.62
Total	38	100
Age		
18 – 20 years old	27	71.05
21 – 23 years old	11	28.95
Total	38	100
Have you ever used <i>Kahoot!</i> Application for Learning?		
Yes	35	92.11
No	5	7.89
Total	38	100

Variable	Number	Percentage (%)
What was your purpose for using <i>Kahoot!</i>?		
Learning	36	61.01
Playing Games with Friends	21	35.59
Reviewing the Content before the Exam	1	1.7
Creating activities in my own account	0	0
Others	1	1.7
Total	59	100

Table 2 revealed that most of the students who enrolled in the *Mass Media Ethics* course are female, with 73.62%, and male only constitutes 26.32%. Respondents whose age ranges from 18-20 years old comprise 71.05% and those whose age ranges from 21-23 years old only account for 28.95%. Most of the students have used and played *Kahoot!* in a class (92.11%), whereas only 7.89% have not used the *Kahoot!* application before. ‘Studying’ as a purpose of using *Kahoot!* ranked first with 61.01%, followed by ‘Playing Games with Friends’ with 35.59%, and lastly, ‘Reviewing the Content before the Exam’ with only 1.70%.

Table 3 The results of the *Kahoot!* application evaluation from the students

Topic	Evaluation Level					Mean (\overline{X})	(S.D.)	Level
	Very Much	Much	Moderate	Less	Least			
1. Content and Presentation								
1.1 It is accurate and clear.	22	15	1	0	0	4.55	0.55	Very Much
1.2 It is relevant to the purpose.	23	15	0	0	0	4.61	0.49	Very Much
1.3 The main point summary is easy to understand.	30	6	2	0	0	4.74	0.55	Very Much
1.4 The time for each response is suitable.	21	14	2	0	0	4.51	0.60	Very Much
1.5 The content is suitable for the application.	23	15	0	0	0	4.61	0.49	Very Much
2. Language and Font								
2.1 It is clear and easy to understand.	27	10	1	0	0	4.68	0.52	Very Much
2.2 It is accurate.	32	6	0	0	0	4.84	0.36	Very Much

Topic	Evaluation Level					Mean (\bar{X})	(S.D.)	Level
	Very Much	Much	Moderate	Less	Least			
2.3 It is suitable for a learner.	31	7	0	0	0	4.82	0.39	Very Much
2.4 The font is appropriate.	27	11	0	0	0	4.71	0.45	Very Much
2.5 The font size is suitable.	21	16	1	0	0	4.53	0.55	Very Much
2.6 The font color is appropriate.	23	10	5	0	0	4.47	0.72	Much
3. Sound, Picture, and Color								
3.1 The sound and video are suitable.	20	16	2	0	0	4.47	0.60	Much
3.2 The background music makes studying more enjoyable.	29	7	2	0	0	4.71	0.56	Very Much
3.3 The pictures are relevant for the content.	23	14	1	0	0	4.58	0.54	Very Much
3.4 The pictures help to increase the students' understanding.	25	10	1	2	0	4.53	0.79	Very Much
3.5 The color in the application is suitable.	23	12	2	1	0	4.50	0.72	Very Much
3.6 The color in the application helps students to answer easier.	25	10	2	1	0	4.55	0.71	Very Much
4. Technology Acceptance								
4.1 It is easy to use, not complicated.	33	5	0	0	0	4.87	0.34	Very Much
4.2 The technology is modern and convenient for studying.	33	5	0	0	0	4.87	0.34	Very Much
4.3 It affects the student's decision in attending the classroom.	31	6	0	0	1	4.87	0.34	Very Much
4.4 It helps to increase learning efficiency.	24	13	0	0	0	4.87	0.34	Very Much
4.5 It is suitable for studying in the current age.	31	6	0	0	0	4.74	0.71	Very Much
5. Attitude								
5.1 It makes studying more comfortable.	26	11	0	0	0	4.70	0.46	Very Much

Topic	Evaluation Level					Mean (\bar{X})	(S.D.)	Level
	Very Much	Much	Moderate	Less	Least			
5.2 It helps the students understand the content easier.	28	8	1	0	0	4.73	0.50	Very Much
5.3 It improves studying more effectively.	23	13	1	0	0	4.59	0.54	Very Much
Total						4.67	0.53	Very Much

Table 4 The results of the students' satisfaction towards the *Kahoot!* application

Topic	Satisfaction Level					Mean (\bar{X})	(S.D.)	Level
	Very Much	Much	Moderate	Less	Least			
1. The system is easy to use.	32	6	0	0	0	4.84	0.36	Very Much
2. I have a chance to study and take a test before the final exam.	24	13	1	0	0	4.61	0.54	Very Much
3. It is fun.	26	12	0	0	0	4.68	0.46	Very Much
4. It is interesting.	30	8	0	0	0	4.79	0.41	Very Much
5. It makes the content more concise.	26	11	1	0	0	4.66	0.53	Very Much
6. It helps students understand the content more easily.	23	14	0	0	0	4.63	0.48	Very Much
7. The instructor provides more explanation after each answer.	24	13	1	0	0	4.61	0.54	Very Much
8. It is more fun than studying through the lecture method.	32	6	0	0	0	4.84	0.36	Very Much
9. I'm not shy around friends when giving wrong answer.	25	10	3	0	0	4.58	0.63	Very Much
10. The music, pictures, and colors make the content more interesting.	19	16	3	0	0	4.42	0.63	Much

Topic	Satisfaction Level					Mean (\bar{X})	(S.D.)	Level
	Very Much	Much	Moderate	Less	Least			
11. I can get the scores immediately.	27	9	2	0	0	4.66	0.57	Very Much
12. I feel excited when competing with friends.	31	7	0	0	0	4.82	0.39	Very Much
13. I feel excited to know the top 3 scores.	32	3	3	0	0	4.76	0.58	Very Much
14. I have more freedom to think and make decisions.	28	9	1	0	0	4.71	0.51	Very Much
15. I feel motivated to participate more in the class.	30	6	1	1	0	4.71	0.65	Very Much
16. It is suitable for assessing knowledge before and after studying each chapter.	30	8	0	0	0	4.79	0.41	Very Much
17. It can be used to review other courses.	17	18	3	0	0	4.37	0.62	Very Much
18. My understanding of the content is greater than by using lecture method.	12	20	6	0	0	4.16	0.67	Very Much
19. My understanding of the content is greater by using the application.	26	11	1	0	0	4.66	0.53	Very Much
20. I like to study with the application.	29	9	0	0	0	4.76	0.43	Very Much
Total						4.65	0.52	Very Much

From Table 3, the results of the *Kahoot!* application assessment from the students, and Table 4, the results of the students' satisfaction towards the *Kahoot!* application in the *Mass Media Ethics* course of second-year students in Communication Arts program, Faculty of Management Sciences, Songkhla Rajabhat University revealed that the total mean score of the *Kahoot!* application quality was at a very good level ($\bar{X} = 4.67$) which was similar to the students' satisfaction towards using the *Kahoot!* application at 4.65 ($\bar{X} = 4.65$). The following table showed the results of both assessments.

Assessment List	Students' Opinion	Meaning
1. <i>Kahoot!</i> application assessment results	4.67	Very Good
2. Students' satisfaction towards <i>Kahoot!</i> results	4.65	Very Good

3. Results of the *Kahoot!* application assessment and satisfaction by experts

The results by experts of the *Kahoot!* application assessment and the satisfaction after using *Kahoot!* in *Mass Media Ethics* course of the second-year students in Communication Arts program, Faculty of Management Sciences, Songkhla Rajabhat University are presented in Tables 5 and 6.

Table 5 The results of the *Kahoot!* application evaluated by experts

Topic	Experts' Opinion	Meaning
1. Content and Presentation		
1.1 It is accurate and clear.	5.00	Very Good
1.2 It is relevant to the purpose.	5.00	Very Good
1.3 The main point summary is easy to understand.	5.00	Very Good
1.4 The time for each response is suitable.	5.00	Very Good
1.5 The content is suitable for the application.	4.33	Good
2. Language and Font		
2.1 It is clear and easy to understand.	5.00	Very Good
2.2 It is accurate.	5.00	Very Good
2.3 It is suitable for a learner.	5.00	Very Good
2.4 The font is appropriate.	5.00	Very Good
2.5 The font size is suitable.	5.00	Very Good
2.6 The font color is appropriate.	5.00	Very Good
3. Sound, Picture, and Color		
3.1 The sound and video are suitable.	5.00	Very Good
3.2 The background music makes studying more enjoyable.	5.00	Very Good
3.3 The pictures are relevant for the content.	4.66	Very Good
3.4 The pictures help to increase the students' understanding.	5.00	Very Good
3.5 The color in the application is suitable.	4.33	Good
3.6 The color in the application helps students to answer more easily.	5.00	Very Good
4. Technology Acceptance		
4.1 It is easy to use, not complicated.	5.00	Very Good
4.2 The technology is modern and convenient for studying.	5.00	Very Good
4.3 It affects the student's decision in attending the classroom.	5.00	Very Good
4.4 It helps to increase learning efficiency.	5.00	Very Good
4.5 It is suitable for studying in the current age.	5.00	Very Good
5. Attitude		
5.1 It makes studying more comfortable.	5.00	Very Good
	5.00	Very Good

Topic	Experts' Opinion	Meaning
5.2 It helps the students understand the content more easily.	5.00	Very Good
5.3 It improves studying more effectively.		
Total	4.93	Very Good

Table 6 The results of experts' satisfaction towards using the *Kahoot!* application

Topic	Experts' Opinion	Meaning
1. The system is easy to use.	5.00	Very Good
2. I have a chance to study and take a test before the final exam.	5.00	Very Good
3. It is fun.	5.00	Very Good
4. It is interesting	5.00	Very Good
5. It makes the content more concise.	5.00	Very Good
6. It helps students understand the content more easily.	4.67	Very Good
7. The instructor provides more explanation after each answer.	5.00	Very Good
8. It is more fun than studying through the lecture method.	5.00	Very Good
9. I'm not shy around friends when giving wrong answers.	5.00	Very Good
10. The music, pictures, and colors make the content more interesting.	5.00	Very Good
11. I can get the scores immediately.	5.00	Very Good
12. I feel excited when competing with friends.	5.00	Very Good
13. I feel excited to know the top 3 scores.	5.00	Very Good
14. I have more freedom to think and make decisions.	5.00	Very Good
15. I feel motivated to participate more in the class.	5.00	Very Good
16. It is suitable for assessing knowledge before and after studying each chapter.	5.00	Very Good
17. It can be used to review other courses.	5.00	Very Good
18. My understanding of the content is greater than by using lecture method	4.67	Very Good
19. My understanding of the content is greater by using the application	5.00	Very Good
20. I like to study with the application.	5.00	Very Good
Total	4.96	Very Good

From the Table 5, the results of the *Kahoot!* application assessment from the experts, and table 6, the results of the experts' satisfaction towards the *Kahoot!* application in the *Mass Media Ethics* of second-year students in Communication Arts program, Faculty of Management Sciences, Songkhla Rajabhat University showed that the total mean score of the *Kahoot!* application quality was at a very good level ($\bar{X} = 4.67$) in accordance with experts' satisfaction towards using the *Kahoot!* application at 4.96 ($\bar{X} = 4.96$). The results of both assessments are presented below.

Assessment List	Experts' Opinion	Meaning
1. <i>Kahoot!</i> application assessment results	4.93	Very Good
2. Experts' satisfaction towards <i>Kahoot!</i> results	4.96	Very Good

Conclusions

This research aimed to study the learning achievement and the satisfaction of second-year Communication Arts students, Songkhla Rajabhat University by using the *Kahoot!* application in the *Mass Media Ethics* course. It was found that the *Kahoot!* application can effectively enhance students' understanding. This can obviously be seen from the percentage increase of pre-test and post-test scores, which was at 58.77/66.93. The content of *Mass Media Ethics* comprised in the *Kahoot!* application was also validated by the experts in terms of correctness, purpose relevance, clarity, and time before experiment. Considering the students' satisfaction with the use of using the *Kahoot!* application in the *Mass Media Ethics* course, the findings showed that the students' satisfaction was at the highest level ($\bar{X} = 4.65$). It can be inferred that the *Kahoot!* application is easy to use and creates a more fun atmosphere in the classroom than learning only with a PowerPoint Presentation. Additionally, the *Kahoot!* application helps the content to be more understandable and more concise, particularly in the *Mass Media Ethics* course which has a lot of theoretical content. The instructor's explanation after finishing each item also helps to increase students' understanding. Moreover, sound, pictures, and colors in the application support the content to be more interesting to the students. This increases the students' excitement and reduces diffidence when giving wrong answers. It is believed to be because each student knows the answers and scores via his/her own smartphone which seemingly results in greater freedom of thought and decision-making. Apart from this, after studying with the *Kahoot!* application, students would feel excited about the top 3 scores, which made them interested in their studies and feel more involved in the class. The findings of this study can be useful to both students and teachers in applying the *Kahoot!* application to assess understanding before and after learning content. It can also be utilized to review the content of other courses.

The findings of this study were in accordance with another study done by Onthaisong et al. (2018) who studied *The Effect of Kahoot learning media on achievement of reviewing test in Gerontological nursing subject*. The findings showed that the comprehensive test scores of the students after reviewing subject material by using the *Kahoot!* application was higher than before using the *Kahoot!* application at a statistically significant different level of 0.05 ($p < 0.05$). In addition, it corresponds with the research investigated by Chakornjirakiat (2015) on *The Use of Game Tester to Compare Satisfaction in Computer Programming Basics exam between using Kahoot! and Regular Exam of Year 2 Diploma of Business Computer Program Students*, Vanit

Business Administration Technological College. It was found that there was a statistically significant difference at .05 between using the Kahoot! application with the regular exam in the Basic Computer and Programming course. The satisfaction in using the *Kahoot!* application was at a good level. Similarly, when Siritanadeepun (2017) examined *Result of using activity with Kahoot learning application for improving makin sentences in Pratomsuksa 1 students of Demonstration School of Suan Sunandha Rajabhat University*, the results revealed that the efficiency of learning management through learning management plans by using a set of activities in conjunction with the Kahoot! application for improving making sentence of Pratomsuksa 1 students of Demonstration School of Suan Sunandha Rajabhat University was effective according to the criteria 83.28/85.00 which was in accordance with the specified criteria at 80/80. It indicated that the students' knowledge increased at 0.6980 equivalent to 69.80%. There was also a statistically significant difference at 0.05 of the students' ability in making sentences before and after using the *Kahoot!* application.

Recommendations

Recommendations from the above evidence are that there should be a review activity during the course using the *Kahoot!* application. Other similar applications or teaching tools could also be designed which are suitable for the students' education level and content desired. The students could also have a chance to design teaching and learning tools on their own. Recommendations for further research and further investigation should be carried out to study ICT media development in the professional field suitable for various levels of education. It could be beneficial to study the application of ICT media with other courses to allow students to have more participation in the course. Further research should be conducted to evaluate the use of mass media ethics in real situations.

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