

# A Study on Integrating Digital Application into Foreign Language Education

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## ABSTRACT

*The purpose of this paper is to discover how the use of digital applications can affect students' attitudes toward positive classroom participation and performance in learning a foreign language. Participants of this study were 128 students who took a foreign language class at a high school in central Korea. To find out students' perceptions and attitudes toward the effect of using a digital application for their foreign language study, online questionnaire and focus-group interview were conducted. Our research findings revealed that these students could engage in active language learning and experience learning improvement while studying a foreign language with digital applications. The improvement was possible by creating more interactive activities and quizzes. In addition, the digital application provided students immediate feedback. It gave students and teachers various motivations beyond the traditional 'chalk and talk' format of text-only-classes. This study provides an overview of the usefulness of digital application. In addition, it provides understanding for students' perceptions and involvement using digital application in a foreign language classroom.*

**Key words:** Digital Applications, PingPong, Foreign Language Education, Classroom Interactivity, Creativity, Knowledge Building.

## 1. INTRODUCTION

In the recent education, a number of teachers have taken advantage of using smart phones or digital devices in their classrooms and they have paid attention to the issue that technology with smart devices should have educational authority and effectiveness in classroom. Whether or not, we can answer to this question. Especially recently a lot of teachers have been using smart devices and digital applications in their classrooms. There are many kinds of educational applications for classroom implementation such as Socrative, Plickers, Classting, or PingPong and, some of them adopt the student response system. Student response systems have emerged as one of useful applications to show the reaction and response result of the students in classroom questions [1]. Student response systems are well-known by many other names, including 'audience response systems', 'personal response systems', 'classroom communication systems', 'group response system', and 'electronic voting systems'.

In recent years, Socrative has been a new type of application frequently used around the world, especially in America. In Korean digital application situation, however,

PingPong has more popularity for teachers and students to use in the classroom setting. This digital application is one of the applications that respond in real time. As Socrative, it is possible to use PingPong in the web and as a digital application. These applications are open source tools. By creating an online classroom in advance using this digital application, teachers can produce a room code. As soon as the students install the application on their digital devices and simply type the room code, they are ready to interact with their teacher. Teachers can ask questions to the students on the spot and then students can immediately submit their answers using their digital devices during the class. This digital application can be also an assessment tool by the usage of O, X questions, 4 or 5 multiple-choice questions, simple text type questions, and drawing image questions. When teachers send the activity results with the image files and the contents to the moderator, the contents can be linked to the Evernote application.

The usefulness of educational applications has been a very interesting issue among researchers and educators, which has not yet definitely resolved. Relatively few studies have been devoted to the usefulness of PingPong application in Korea. However, this new application in education can be served to promote creativity and knowledge-building for students because students can engage in interactive learning activities by using this application in their classes. Teachers can also be capable of sharing the result of students' performance and

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offering prompt feedback to their students. Using this digital application can be a very effective method to the teachers who try to boost classroom interaction between students and teachers. In conjunction with each of specific approaches, the main feature of this application is to help teachers to practice interactive teaching for their student. With the use of the digital application, it can be possible for teachers to grasp students' views and responses to their questions and this application can also perform formative assessment in real time.

In these respects, the aim of this study is to find out how the use of digital application can promote interactivity in foreign language classroom. This study will first provide an overview of the usefulness of the digital application and then offer an analysis of students' perceptions and involvement using the digital application in the classroom.

## 2. RELATED RESEARCH

### 2.1 The use of digital applications in foreign language classroom

Skillful classroom teachers dynamically seek to offer chances to their students to engage in collaborative interactions and the same should be true for digital education environments [1]. Teachers had tried to share cases of clicker requests and accomplishments in various consultation, workshop, and conference and they realized that their involvement in teaching with clickers has presented that instructional technology can be used in a variation of methods to change classroom dynamics [2]. Student Response Systems such as PingPing or Socrative can be used in handheld student devices, which permit the teacher to have more engagement with students than in a typical lecture-style classroom. These applications can help students to respond to teacher-generated questions in order to guide the pace of instruction [3].

A real-time collaborating application such as PingPong can be applied to classroom learning. With clickers, the expense would be very high and using them each time would require teachers to deal with separated and dedicated programs to come about as of the remote control. Also, it would take time when they are installed. In order to install clickers, teachers should use equipment and facilities such as the answering machine, so using them in class time was one of the failure factors because they demand school hours.

On the other hand, with some digital applications such as PingPong, students can download the application from the application store or play store. Since it can be applied directly from the smartphone to smart devices, it can be immediately applied in the class. The development is completed in Korea and it can allow a more convenient access because the user interface becomes Hangul, Korean language (UI). After using the digital application, it delivers in-class responses to any type of questions that the teacher could ask. Digital applications such as PingPong can deliver students' feedback quickly and can be linked to Evernote application [4].

There is a big potential to increase the students' involvement and creativity with new methods in ICT classroom [5]. It is sure that integrating various digital tools as learning management systems has converted traditional text-based

instructional methods into more interactive and dynamic technology-based instructional models [6].

### 2.2 Promoting interactivity in the foreign language classroom using digital applications

Some of the greatest advantages of the digital applications such as PingPong are the immediate result of the students' activities and immediate storage of result data in the cloud. Teachers can share, analyze, and evaluate the result data. Further, the result data can be presented in real time to students. By a polling function, feedback about class issues can be instantly collected. This application can be linked to the typical cloud of Evernote [7]. In sharing and saving the result of the progress in work, the use of this application can be adapted to customize the context of the classroom activities. Teachers can nominate a student at random by using the timer function, and it is also possible to submit the correct answer of the students at the same time using the timer function.

Most digital applications such as PingPong can be easily registered with Google accounts or Facebook accounts, and it also allows users to log in with separate login accounts. Teachers can create an online classroom and create a room code for their students. If the students have the room code, they can enter the room immediately. Students' performance can be evaluated while they carry out the class activities by entering the room code and then they can check the results of the evaluation and get the analysis of their performance. This application basically allows teachers to create questions either on the spot (during class), or as a series or prepared questions (exam-style) and students will have to answer the questions in the restricted time [8]. Among various digital applications, PingPong shares some similarity with Socrative in some respects, but they also have differences as well. Table 1 shows the comparison between the characteristics of PingPong and those of Socrative.

Table 1. PingPong and Socrative

	PingPong	Socrative
Log in	Google+, Facebook	E-mail and password
Language	English, Japanese, Korean	English
Multiple choice	4, 5multiple choice	
True/False question	O	O
Version	Integrated	Teacher, student
Data collecting	Evernote	Excel file
Drawing tool	O	x
Imaging answer	O	x

OS	Web, iOS, Windows, Android	Web, iOS, Windows, Android
Short answer	O	O
Timer	O	x
Selecting speaker	O	x
Hiding response	O	x
Assessment	O	O
Knowledge gain	O	O
Free	O	O
Anonymous name	O	O
Setup time	2~5minutes	5~15 minutes
Share	Evernote	x
Subjects	All subjects	Limited

With the help of PingPong application, it is possible for teachers to know how much each student understands class subject or what they think about learning materials or activities. Teachers can throw out the questions related to the class work while the class progresses. When teachers ask questions to students verbally, only a small number of excellent students will reply in speech, and the students, who do not know the answer or fear failure, will participate passively and finally not be interested in the class. On the screen that the class shares their result data, teachers can make it anonymously in order to let the students make wild guesses and have freedom to make mistakes. Because students cannot see their own name directly, they are not afraid of making mistakes, so they can actively participate in the class.

With the help of digital applications, it is possible for students to cooperate with their classmates in learning with various quizzes, and work together in groups. Students look at the results of their answers on the screen anonymously, and the instant results can help them more motivated and stimulated regardless of the answer. Teachers can assess the achievement level of the students, and it is possible for them to receive quick feedback directly about the situation of their students what teachers did not know or understand. Fig. 1 shows the Evernote file that exhibits the result of responses of the students to the teacher's pop-up questions during the class.



Fig. 1. Shared text answers from students in EverNote

While organizing the content they learned in class, students can figure out how much they have achieved compared to the other students. Every smart device, regardless of whether it be a smartphone, tablet, desktop, and the operating system of a laptop, can be connected to the web. In the case of no devices or support from school authorities, teachers ask students to bring out their own devices in class. Students participate in the class actively with their personal devices compared to without their digital devices in class. It is easy to prepare in class since students always use their devices. The contents learned in the previous lesson can be quickly reviewed at the start of the class. PingPong can be used to review information from the previous class and is very effective in calling roll at the same time. Using the OX quiz, students are able to respond directly to simple questions. It is very useful in asking questions based on the simple fact about the basic knowledge of the textbook.

### 3. PARTICIPANTS AND PROCEDURES

The participants of this study were 128 high school students who took Japanese classes in the first semester of 2014 at a female high school located in the central area of Korea. All of the participants were in the third grade. Each class is composed of 30 students. Survey data of this research were collected from March 3<sup>rd</sup> to the end of August in 2014. Most of the students had had no experience of using digital devices or digital applications for their classroom study at all. However, they were good at handling smart devices and smart phones by using various applications for social or personal purposes. It was needed for the teacher to convert students' personal experiences of using digital devices into developing skillful digital literacy and then apply those skills to the classroom practice by integrating useful applications into their foreign language learning. Through a poll of students, after investigating each of the features and usability of students' digital devices, the teacher chose PingPong as a facilitating tool

to help effective classroom application by applying and sharing the results of students' performance.

At the beginning of the semester, the students were asked to install PingPong Clicker on their mobile devices. For the interactive classroom activities, groups were formed up to 6 group members for each team and most of the students actively took part in the class activities. The teacher prepared various questions for classroom interaction and content knowledge from O.X simple quizzes, 4-choice, 5-choice, short, and full text questions to the drawing and writing response questions. To share the students' responses, answers of the students were viewed on the big screen using a mirroring tool and all of them were saved in EverNote cloud.

At the end of the semester, online questionnaire was conducted to find out the students' experiences and attitudes toward the effect of using the digital application for their foreign language study and classroom interaction. Among 128 participants, 120 students participated in the online survey via Google sheet as an online survey tool. Also, focus group interview was conducted to find out students' attitudes and perception about their learning experience of using the digital application.

According the survey result, most of the students had been using their digital devices in messenger and SNS (98.3%), music and movie (86.4%), game (73.7%), internet (71.2%), education (59.3%), shopping (43.2%), and reading (2.5%). At first, most of the students were used to sending message on the mobile, but they could finally carry out lots of learning activities on the mobile. Fig. 2 shows the types of students' use of their mobile devices.

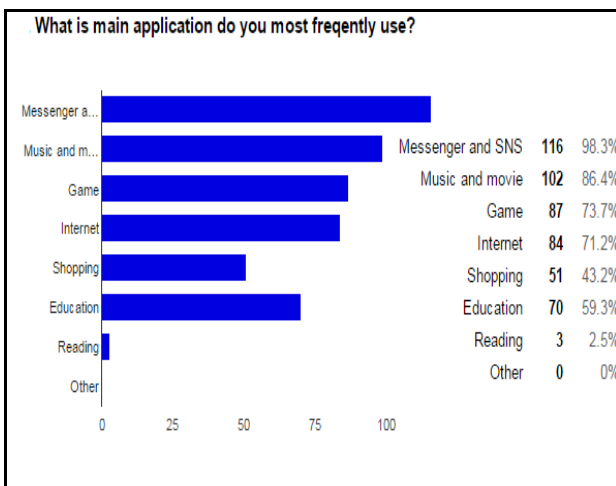


Fig. 2. The types of students' use of mobile devices

#### 4. RESULT AND DISCUSSION

##### 4. 1. Great for interaction with students and teachers

Thanks to the use of the digital application, the teacher was capable of teaching while moving over the entire classroom. Unlike classes using only a desktop computer, when using a mobile device, it was possible to ask questions to students to complete the lesson while the teacher was going around the classroom. The teacher could present pop-up

questions to student or have a surprise quiz, and it did not take much time to make the question. With performing simple quizzes, the teacher could confirm whether all the students had the information all figured out. Including kindergarten, elementary, secondary, and university, this application can be applicable as well as in the general public education. Whether the teacher has only a smart phone or other devices, regardless of all grade levels, the teacher can instantly gather prompt response to various quizzes in the class. According to the research result, 87 students (72.5%) responded that they were satisfied with the use of the digital application for a part of classroom learning activities. Fig. 3 shows the students' response related to their satisfaction in using the digital application for educational purposes in the classroom.

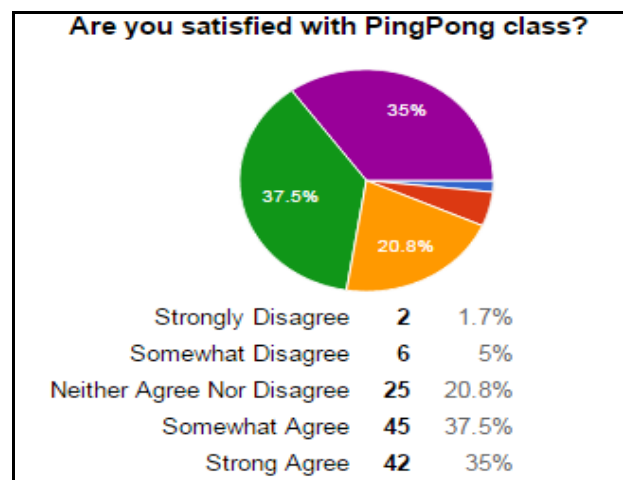


Fig. 3. Class satisfaction

It was also easy to test the writing test with vocabulary by using PingPong. The teacher could make the spelling check and correct sentences which students wrote during the writing class, such as English, Japanese, and Chinese. It was also useful to teach the appropriate way to write. Furthermore, it was possible for students to discover where their errors were placed in their writing. It was convenient for students to check their responses, with the results in the form of a graph and donut-shape in real time. The learning process of the students in this study could be facilitated by sharing resources handed out via the digital application. It was the most appropriate tool for teachers to check the mood and state of the previous lesson to students. If the teacher begins the lesson with the questions to find out the mood of the day in OX quiz before class started, the teacher is able to start from the standpoint of the students. Compared with Socrative, the use of PingPong helped students and teachers build rapport and positive relationship and it was also very convenient for the students to log in as a participant. Fig. 4 shows the students' response related to their perception about the function of PingPong in the foreign language classroom.

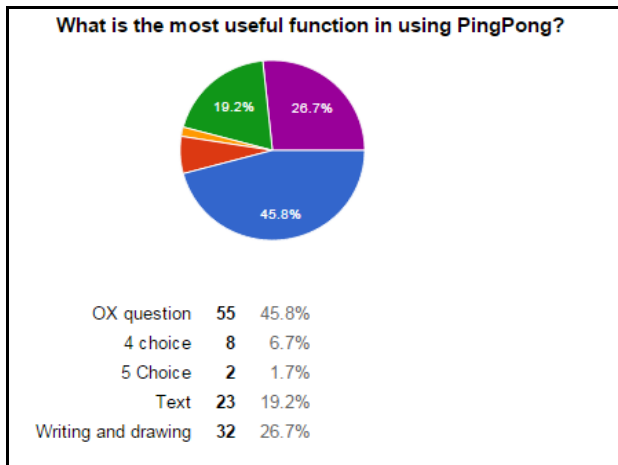


Fig. 4. Useful functions in PingPong application.

#### 4.2 Great for knowledge building

Most of the students had little experience of studying foreign languages using digital devices or digital applications. According to the survey, 59 students (48.4%) responded that they had sometimes participated in ICT-mediated classes while 61 students (50%) responded that they had never or rarely engaged in ICT-related classes. Fig. 5 shows students' responses related to their ICT-mediated learning experience.

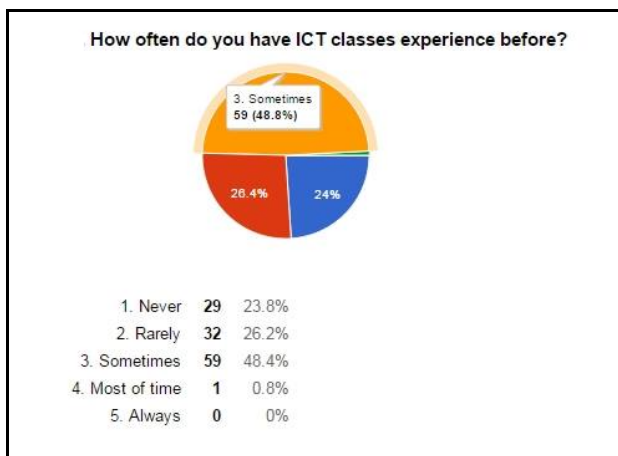


Fig. 5. Previous experience of ICT-mediated classes

Students in this study viewed their foreign language learning experience using the digital application as positive and satisfactory. Among 120 respondents, 89 students (72.4%) answered that they were satisfied with the use of the digital application in their study. Fig. 6 shows students' responses related to their level of satisfaction about studying with PingPong application.

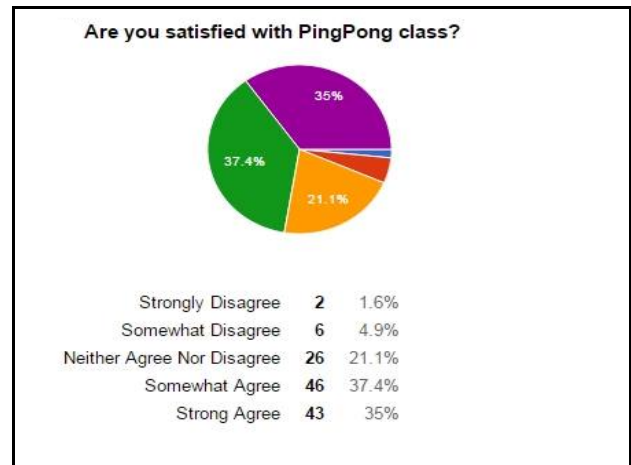


Fig. 6. Previous experience of ICT-mediated classes

According to focus group interview, students' feedbacks on using the digital application as the digital application during their foreign language learning were as follows:

- ✓ Every week, I was looking forward to next classes because I could pay attention to the class and each class seemed to be too short for me.
- ✓ I have never experienced this kind of learning and studying with the digital application. This class was innovative and fresh.
- ✓ It was great for me to be able to share my classmates' ideas or thinking and I could understand my friends more.
- ✓ I am happy for the fact that I could develop digital literacy by dealing with various mobile devices and digital applications.
- ✓ I feel like being born again. I did not realize how much I could do with the digital device beside just sending text messages and taking picture.
- ✓ I could understand the course contents with the easy and interesting method and using the digital application PingPong helped me improve my Japanese language skills.

Most of the students in this study responded that they were satisfied with the use of the digital application and that the use of the digital application helped them improve their foreign language ability. The use of the digital application was also very advantageous for building vocabulary and explaining basic definitions and concepts of the course contents. Smart devices do not always bring improvements in the classroom, but this study presented a promising classroom case that new technology could be applied to foreign language instruction effectively due to the effective and interactive features of digital applications.

## 5. CONCLUSION

This paper starts with the following question: "Should technology with smart devices have educational authority and effectiveness in the classroom?" To answer this question, this study has paid special attention to PingPong application for its

potential to promote classroom interactivity in the foreign language classroom. As a result, it was revealed that the digital application had powerful impact on classroom interaction between students and teachers and that the application was a very efficient tool in improving students' learning performance.

According to the results of responses from students, students recognized that it was very helpful to save and share their answers in using the digital application, which are connected with EverNote. Shared results were able to play an important role in building their foreign language knowledge. In addition, by using both web-based and mobile-based applications as a real time response system, students and teachers could find themselves motivated and engaged while just enjoying the class. It is still argued whether new technology can support current education system and assure creativity in learning at school. Even though results of this study leave more to be investigated and answered about students' achieved learning experience while involving in ICT classroom, it could be concluded that students of this study considered the digital application as a useful tool in letting them devote more time and effort to their classes than they would otherwise.

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