

Study on the Teaching Methods for Korean as a Foreign Language by using Mobile Apps focusing on ‘HanTongE’: A Multilingual Vocabulary Translation App

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ABSTRACT

The development of technology has made a great deal of research on education using smart devices, which has brought about many changes in the field of education. In particular, interest in foreign language education through mobile apps has increased, and a lot of mobile apps are emerging in Korean language education. However, most mobile apps are built around personal learning, and learners find it difficult to apply what they have learned in the app to their lives. So, in this research, the mobile app for learning has its purpose in order to present the lesson plan used for the class in the classroom, not just end use. To that end, we have described the current state of mobile applications in Korean language education and the educational content of multilingual vocabulary band applications “HanTongE” and “HanTongE”. Based on this, we adopted the method of flipped learning, which is an activity-centered lesson method, and presented an education plan in which self-directed learning and learners are the main subjects of the lesson.

1. Introduction

The development of information and communication technology has made many changes in our lives and the education sector is not an exception. Classes in the past mainly used chalkboards and textbooks whereas finding classes utilizing various smart devices are not hard to find in these days. In fact, there is a growing interest in teaching methods utilizing smart devices, and related research is actively being conducted.

Jang (2012: 381), compared traditional education methods and other methods utilizing smart devices and summarized as follows;

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Table 1. Comparison Between Traditional Education Methods and Other Methods Utilizing Smart Devices, Jang (2012: 381)

Traditional Education	Education Methods Utilizing Smart Devices
Teacher-Directed	Self-Directed
Knowledge Enhancement	Motivated
Uniformity	Adaptive
Book-Type Textbook	Resource Enriched
Utilizing Physical Facilities	Technology Embedded

It doesn't mean that education utilizing smart devices is necessarily excellent, but it means that education utilizing smart devices has a lot of advantages and can bring significant educational effects when implemented properly. It can also be applied for the education of foreign languages.

In this paper, attempts are made to understand the status of Korean language education utilizing smartphone applications, which can be considered as the closest smart devices in our daily lives and suggest teaching methods utilizing mobile apps focusing on the multilingual vocabulary translation app, HanTongE.

2. Quantitative Growth and Limitations of Mobile Apps in Korean Language Education

According to a survey conducted by the Ministry of Science and ICT, 97.8% of smartphone users aged 3 years or older were found to be using a smartphone more than once a day. (Korea Internet & Security Agency, 2017). This means that smartphones cannot be separated from our daily lives and we can do various activities at anytime and anywhere using smartphones. What makes smartphones capable of doing so is mobile applications with which we make use of various features such as phone calls, text messages, and games.

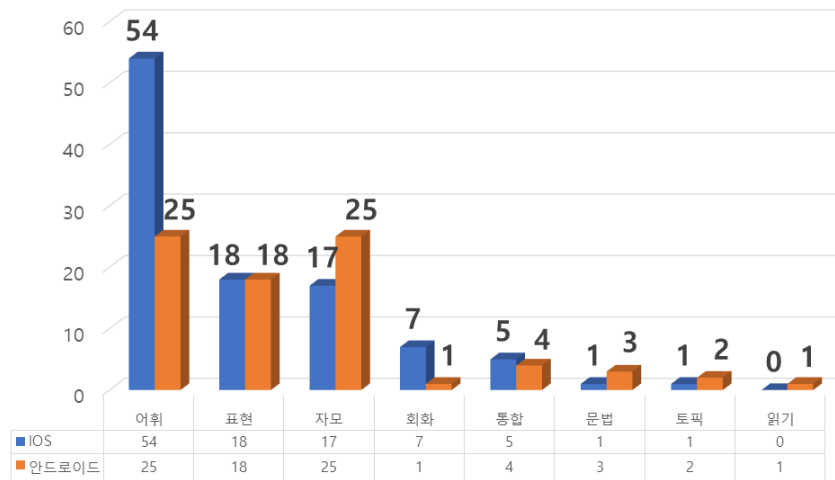
Korean language education sector started to taking interest in mobile applications in 2010 when the commercialization of smartphones began. And this is also the time when various studies on mobile apps were initiated.

According to Choi (2015: 23), there are about 406 IOS-based Korean education apps and 250 Android-based Korean language related apps. Moreover the results of searching Korean, Learn Korea, Korean Language, Korean Study, 한국어, 韓國語 showed that there are 103 iOS-based apps and 79 Android-based Korean language education apps for foreigners, excluding those unusable and non-learning translations and dictionary apps. Below table summarizes the findings for each learning area.

Both platforms showed that there are lots of Korean alphabet and vocabulary apps, and expressions and conversation apps take a higher proportion, however the contents of the apps often were consisted of simple sentences. This implies that understanding the situation and context of conversations as well as applying such conversations to actual situations are difficult. Also, internalizing what have

been learned was inadequate due to insufficient practices or activities available in the apps. Furthermore, because not many applications support multiple languages, it is expected that many learners find difficulties using the apps. In addition, most of the apps are designed for self-taught, and the contents of lessons using apps are still inadequate.

Table 2. Status of Korean Language Mobile Application for Each Type and Platform (Choi, 2015: 23)



3. Expanding the Contents with the Foundation of 'HanTongE'

3.1 Multilingual Vocabulary Translation Mobile Application 'HanTongE'

'HanTongE (Han-Tong_E)' is a mobile application that automatically analyzes the meaning of key vocabularies in Korean sentences in real time and provides corresponding words in foreign languages. Unlike other mobile apps, it provides vocabulary bands of various languages. Input of Korean sentences are made easy with input options of keyboard, voice, and image.

As shown in Figure 1, the vocabulary band result of Korean sentences entered can be checked in English, Japanese, Vietnamese, and Thai. Currently, the vocabulary band service is provided in 10 languages of English, Japanese, French, Spanish, Arabic, Mongolian, Vietnamese, Thai, Indonesian and Russian. It can be used by downloading it from Google Play Store and Apple App Store for free. It provides services to married immigrant women, Hallyu tourists and others who can understand basic Korean language (Ryu, 2018: 86).

In addition, as shown in Figure 2, it has a characteristic of automatically analyzing the meaning of polysemic words in line with the context by applying the lexical semantic analysis technique of the natural language process to provide vocabulary translation. In the sentence below shows a polysemic noun "배(bae)" 3 times each of which shows a different meaning. By analyzing the

meaning of each word in line with the context, it shows that the first “배” means “boat”, second “배” means “pear”, and the third “배” means “abdomen.” Using ‘HanTongE,’ foreigners with basic Korean language ability can easily understand the meaning of Korean sentences.

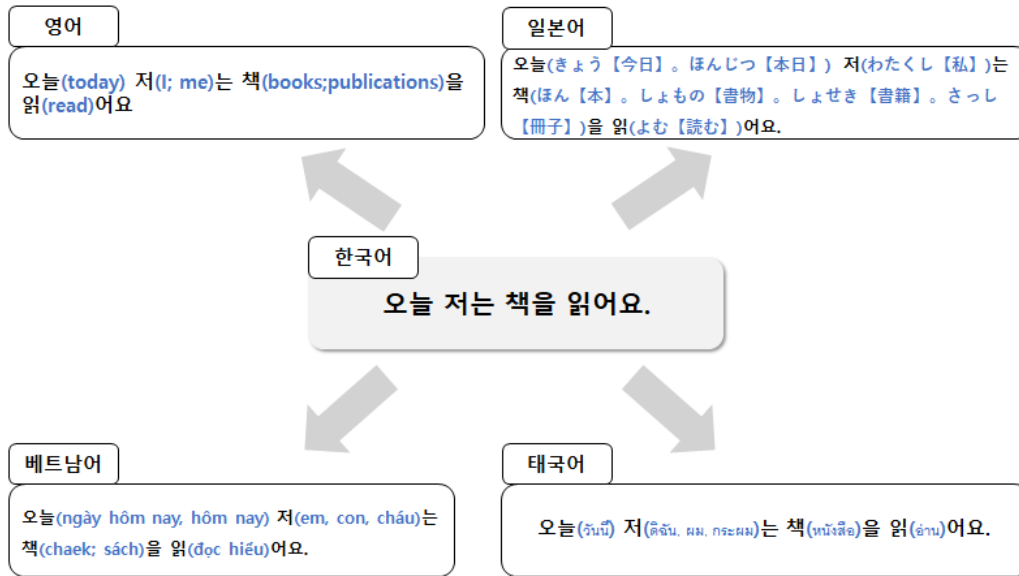


Fig. 1. Example of Multilingual Vocabulary Translation

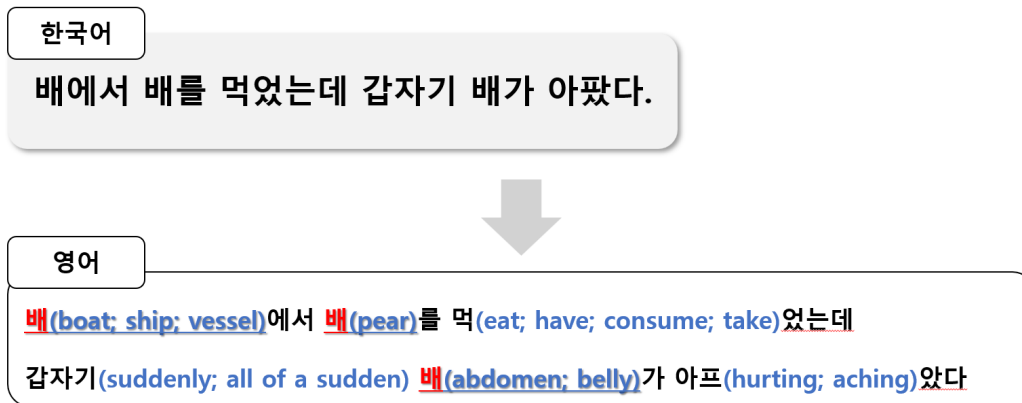


Fig. 2. Example of Providing Vocabulary Translation with Applied Natural Language Process Technique

The multilingual vocabulary band consists of ‘Korean lexical semantic analysis module’ and ‘multilingual translation knowledge.’ The ‘Korean lexical semantic analysis module’ classifies the input sentence into morpheme units, and selects the meaning of each morpheme from the ‘semantic analysis standard dictionary’, and assigns the corresponding semantic symbol whereas the ‘multilingual translation knowledge’ stores and manages the foreign language words of analyzed morphemes. Since

'multilingual translation knowledge' should be assigned with a word for each unit of morpheme defined in the 'semantic analysis standard dictionary', a 'semantic mapping' is performed between the two dictionaries

The 'semantic analysis standard dictionary' complies with the lexical semantic classification standard set in the Korean standard unabridged dictionary¹⁾ of the National Institute of the Korean Language. 'multilingual translation knowledge' utilizes the translation knowledge from the Basic Korean Dictionary²⁾ for the 10 languages (Ryu, 2018: 83).

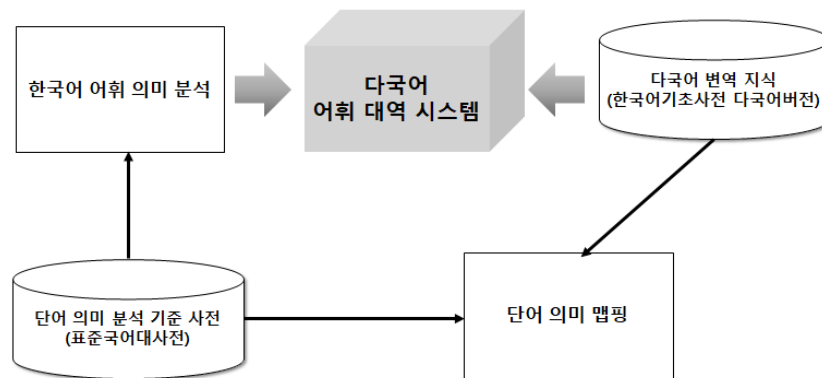


Fig. 3. System Configuration Diagram for Multilingual Vocabulary Translation Service System

3.2 Korean Language Education Content

Korean language learning contents have been added in order to enable continuous use and self-directed learning, rather than having the use of mobile apps short-lasting. The addition of learning content is expected to make the use of multilingual vocabulary service more effectively, while increasing the learning effect. The learning contents will be added in the order of vocabulary, grammar and culture. After the actual use of basic vocabulary contents, the feedbacks from learners and teachers will be received in order to identify the areas to be corrected and improved. This will be adapted to the contents of intermediate or grammar at a later time.

The contents of Korean language vocabulary learning contents were planned in the following order and the details of the process are as follows.



Fig. 4. Process of Korean Language Learning Content Planning

1) Korean standard unabridged dictionary (<https://stdict.korean.go.kr>)

2) Basic Korean Dictionary (<https://krdict.korean.go.kr>)

3.2.1 Review Previous Studies

Previous studies with the subject of ‘development of Korean language education mobile applications,’ ‘(marriage) immigrant Korean language education for immigrants’ and etc. were reviewed. In the past, research on the development of ‘Korean language education mobile application’ focused on revealing the usefulness of learning through mobile applications whereas such studies in these days has been segmentalized and carried out focusing on the functions of Korean language such as speaking, listening, reading and writing. Also, research on mobile app development has been actively conducted. However, observations made to point out the limitations in continuous use of the mobile apps. The number of detailed studies on the ‘Korean language education for marriage-based immigrants’ has been increasing and studies to solve the problems related to time and space constraints of marriage-based immigrants have been also conducted. In addition, there found many studies trying to help marriage-base immigrants adapt to Korea by Korean culture education beside Korean language education, though having insufficient degree of reality.

Currently, the needs for Korean language education using smart devices have come to the fore and many mobile applications Korean language education have been developed; however, research on the development of mobile apps for marriage-base immigrants has been insufficient.

3.2.2 Analysis of Teaching Materials for Korean Language

In order to make the educational contents, the teaching materials that students currently use to learn Korean language were analyzed. The textbooks for basic Korean classes from Busan University of Foreign Studies, Korea University, Ewha Womans University, Sogang University, Seoul National University, Sejong Korean, Sungkyunkwan University, Standard and Yonsei University were analyzed for the functions, vocabularies and grammars. Considering the students of HanTongE, the teaching materials of 『Korean Language with Marriage-Base Immigrant Women』 and 『Korean Language and Culture for Immigrants』 were also analyzed.

As the nature of beginner’s classes, many parts were repetitive and more educational contents based on vocabularies, rather than situations, were found in 『Korean Language with Marriage-Base Immigrant Women』 and 『Korean Language and Culture for Immigrants』, considering the characteristics of immigrants.

3.2.3 Topic Selection

Based on the analysis of previous studies and teaching materials and considering the characteristics of mobile applications, 14 topics for beginners were selected as shown in below Table 3 and lexical categories and functions suitable for each topic were added. In other words, functions were added to improve communication ability, rather than simply memorizing vocabularies.

Table 3. List of Education Content Topics, Lexical Categories and Functions of HanTongE

Ch.	Topic	Lexical Category	Function
1	Self-Introduction	Country / Occupation	Self-Introduction / Greeting
2	Location	Object / Location	Talking about location
3	Place	Place / Vocabularies related to place	Asking for directions and places (Giving directions)
4	Everyday Life	Verb 1	Expressing everyday life
5	Shopping	Object / Adjective 1	Buying goods
6	Traffic	Transportation / Verb, Adjective 2	Talking about transportation types
7	Family	Family / Appearance	Introducing Family
8	Appearance	Body / Clothes	Describing appearance and clothes
9	Weekend	Date, Day, Time / Hobby	Talking about weekend activities
10	Food	Food / Taste	Making suggestions
11	Weather and Season	Weather / Seasons Expression	Expressing weather and seasons
12	Emotion / Feeling	Emotion / Feeling Expression	Expressing emotion
13	Travel	Related to travel	Talking about travel experiences
14	Hospital	Symptom / Treatment	Expressing symptoms

3.2.4 Selection of Vocabularies and Grammars

Based on the analysis of previous research and teaching materials, vocabulary and grammar suitable for each subject were selected. Vocabularies appropriate for beginner level were selected in line with the Korean Language Education Vocabulary Contents (Step 1) of (National Institute of Korean Language, 2012a) whereas the Korean Language Education Grammar/Expression Content Development Research (Step 1) (National Institute of Korean Language, 2012b) was used as a selection reference for grammar. In particular, considering the marriage-base immigrants who are the target of this study, about 20 vocabularies and 3 grammars were selected for each chapter.

Table 4. Example of Vocabulary and Grammar Selection

Chapter 1 Self-Introduction				
Vocabulary				
Korean	American	Chinese	Japanese	Vietnamese
Filipino	Cambodian	Mongolian	Thai	Student
Teacher	Housewife	Office Worker	Cook	Doctor
Nurse	Singer	Reporter	Soldier	Public Official
Grammar				
은/는 (eun/neun)		-이에요/예요 (ieyo/yeyo)		-이/가 아니예요 (-i/ga anieyo)

3.2.5 Writing Example Sentences

Using example sentences was selected as a learning method to effectively utilize the vocabulary

translation service of HanTongE. For each vocabulary, one conversation and three example sentences were prepared. The example sentences were built to enable more clear understanding of vocabularies through the context. In addition, example sentences were prepared with the grammars to be studied in each chapter, leading to understating various grammars as the learning process progresses. In the upcoming lessons following, example sentences were constructed to enable spiral education utilizing previously handled grammars.

Table 5. Example of Making Example Sentences

Vocabulary	Vocabulary Description/Definition	Type	Grammar	Sentence/Conversation
학생 (Student)	1. A person learning arts and sciences	Conversation	eun/neun#ieyo/yeyo	A: 직업이 뭐예요? B: 저는 학생이에요.
		Sentence	eun/neun#ieyo/yeyo	저는 학생이에요.
	2. A person who attends a school and studies	Sentence	eun/neun#ieyo/yeyo	지영 씨는 학생이에요.
		Sentence	eun/neun#i/ga anieyo	유라 씨는 학생이 아니에요.

In addition to studying each chapter, self-assessments to assess and check what oneself has learned were added. Insufficient feedback and evaluation, which is one of the most frequently pointed out weakness of learning through mobile apps is anticipated to be improved. Seven multiple choice type questions are asked for each chapter for the evaluations.

The actual HanTongE mobile application has been developed based on the above mentioned details. Upon executing the mobile app, a screen enabling the use of vocabulary translation appears and translated vocabularies can be checked by clicking the button.

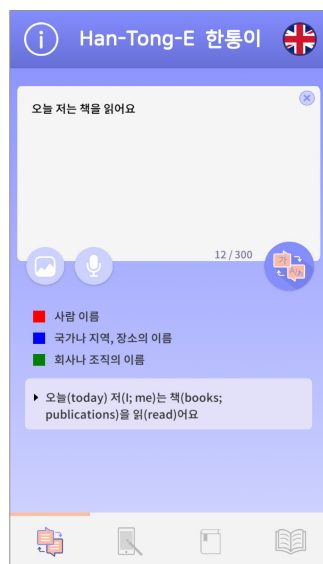


Fig. 5. Example of ‘HanTongE’ Vocabulary Translation

Korean language education contents have been added to the mobile application HanTongE, which is set to first display the screen where a desired topic can be selected. Once the subject is selected, it is configured to choose whether to start the lesson (start the lesson) or solve problems related to the subject (solve the problems). Vocabularies related to the subject appears after selecting the subject. Currently, 14 topics for beginners are available and 20 vocabularies for each chapter can be found for learning.



Fig. 6. Example of Education Contents of 'HanTongE'

After selecting a vocabulary and entering, example conversation and sentences appear, and vocabulary translation will appear on the screen by clicking on the example sentence. One example conversation is available for each vocabulary and this is anticipated to help the Korean language learners understand the context. 3 example sentences for each vocabulary are available to help the students to better understand the meaning of the vocabulary.

Problem solving is composed of a total of 7 problems. Students can view their own score after selecting one of the choices for each problem and checking the answers. Questions with wrong answer can be viewed along with the correct answer, enabling the students to be aware of their weak areas.

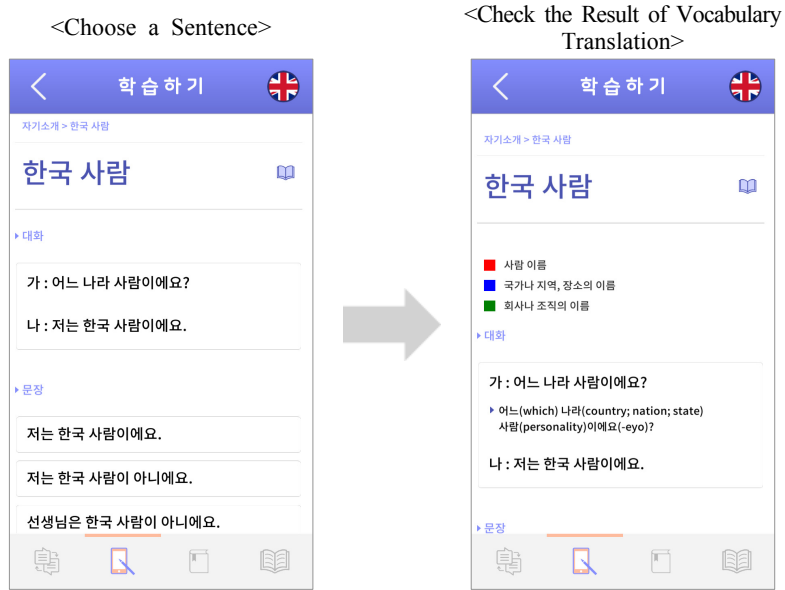


Fig. 7. Example of Education Contents of 'HanTongE'



Fig. 8. Example of Evaluation within the Education Contents of 'HanTongE'

4. Suggested Korean Language Classes Utilizing 'HanTongE'

Korean language education using mobile applications is most of the times designed to enable self-studying, but it is expected to have more meaningful educational effects if it is applied to

classroom situations. This will mean a supplement that will make up for the insufficient expression part of application and planning classes to enable expressing learned expressions and enhance the ability to correctly use what have been learned through applications at appropriate situations.

The basic class model for Korean language education is primarily divided into five phases of 'Introduction - Presentation/Explanation - Practice - Utilization (Use) - Finishing'. However, in the actual class environment, most of the focus is often given to 'presentation/explanation' and 'practice' (Park, 2014: 84). Considering that the goal of Korean language education is enhancing communication capability, it is evident that appropriate application suitable for situational context needs to be more actively implemented. For this purpose, it is sought to suggest education method utilizing flipped learning for Korean lessons taking place in classrooms.

4.1 Flipped Learning and Korean Language Education

Flipped learning is what has brought changes to the traditional model of classroom instruction which started in earnest in 2007 by Jonathan Bergmann and Aaron Sams from Colorado, USA. In Korea, it started to gain the public attention when it was introduced by the KBS Panorama <Finding the Future Classroom> in Mar 2014.

In Korea, flip learning is variously called as 'flip learning', 'transition learning', 'backward learning', 'backward classroom', 'reverse class' and etc. To briefly summarize, it means an overturned traditional class. The Korean U Learning Association (2014), defined the concept as a convergent learning method mainly based on interactions with the class form of problem solving and discussion at schools after learning contents online at home in advance. In other words, flipped learning refers to carrying out corresponding activities at classrooms after learning contents, which were used to be taught at classrooms, at homes or private spaces

Lee (2014: 188) compared traditional classes and flipped learning and summarized the characteristics as follows.

Table 6. Comparison of Traditional Classes and Flipped Learning (Lee, 2014: 188)

Category	Traditional Classes	Flipped learning
Teaching Method and Content	Centering on teaching to convey the subject knowledge by focusing on the teacher's lecture	Centering on learning to understand and deepen the subject knowledge obtained in advance.
Role of Teachers	Knowledge provider / Controlling discipliner	Learning promoter / helper
Interaction with Students / Interaction between Students	No to limited interaction between teacher-student/student-student	Active interaction between individuals or groups/ promote peer learning
Class Atmosphere	Very passive behaviors of students due to controlling atmosphere	Made up with active participation of students in an atmosphere of freedom

Observing the differences with the traditional classes, the biggest difference would be the change in the roles of teachers and students. Teachers can be viewed as a knowledge provider and controlling

discipliner in the traditional classes but as students come to classes after learning the contents of the class, the role of teachers changed to a helper, changing the role of passive students into a leading figure of classes.

With the ability of flipped learning to make classes capable of active learning and actual expression of what students have learned earlier, rather than focusing on presentation/description, flipped learning has been continuously studied in the field of foreign language education. In fact, such studies have been actively conducted for Korean language education since the research carried out by Park (2014).

4.2 Designing Korean Language Class Utilizing Flipped Learning

Classes are designed by broadly dividing the phase of a lesson into prior learning and learning at classrooms and subdividing them into ‘Practice-Application-Summarization’.

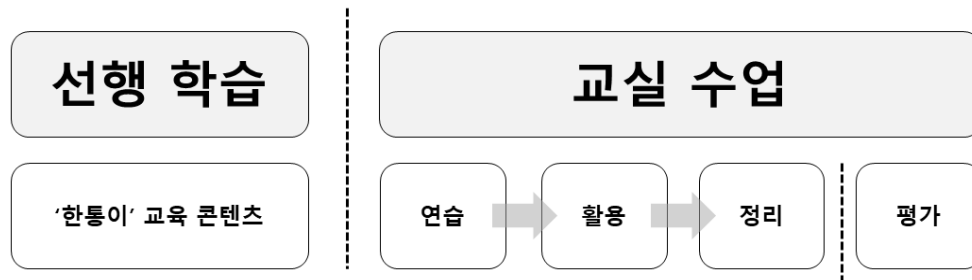


Fig. 9. Configuration of Classroom Lessons for Korean Language Classes Utilizing ‘HanTongE’

In prior-learning, one chapter is learned using HanTongE application. Students can freely learn vocabulary translations from prior-learning using example sentences introduced by HanTongE application.

For ‘Practices’ at classrooms, students briefly talk about what they were not able to understand or had difficulties to understand during the prior-learning, check how much they have understood and have quiz or fill-in-the-blank tests to see how much they understand or how well they are able to properly utilize what they have learned during the prior-learning. This part is planned to be also included in the teaching materials currently being developed.

‘Utilization’ part, which has carried the most weight in the classroom learning, needs to be configured to enable various talking activities. It should be composed to ensure that students can express what they have internalized through learning by peer activities, group activities, role playing, presentations, games and etc.

During the ‘summarization’ process, key points of each chapter should be summarized and questions on matters not clearly understood shall be received, followed by introducing and mentioning about upcoming next chapter and finishing up the class.

‘Evaluation’ shall be made based on written and verbal evaluations as an achievement evaluation at the end of each semester. Students can understand their weak points and learn educational directions after the course.

※ 어느 나라 사람이에요? 이야기해 봅시다.

<보기>

가: 어느 나라 사람이에요?
나: 저는 한국 사람 이에요.

1.

가: 어느 나라 사람이에요?
나: 저는 _____ 이에요.

※ 친구는 어느 나라 사람일까요? 질문해 봅시다.

<보기>

가: 미국 사람이에요?
나: 아니요. 저는 미국 사람이 아니에요. 필리핀 사람 이에요.

X O

1.

가: 청정 씨는 _____ 이에요?
나: 아니요. 저는 _____ 이 아니에요. _____ 이에요.

X O

Fig. 10. Example of Lessons at Classrooms

- Example of Peer Activity

<p>이야기해 보세요.</p> <p>자기소개하기</p>	<p>제 이름은 _____ 이에요/예요. <small>(이름)</small></p> <p>저는 _____ 사람이에요. <small>(나라)</small></p> <p>저는 _____ 이에요/예요. <small>(직업)</small></p>
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- Example of Role Play

<p>말하기 활동</p> <p>이름이 뭐예요?</p> <p>명함을 만들고 그것을 교환하며 친구와 이야기해 보세요.</p>	<p>말하기 활동 예</p> <p>가: 안녕하세요? 처음 뵙겠습니다. 저는 왕호예요. 나: 네, 만나서 반갑습니다. 제 이름은 (유키)예요. 가: (유키) 씨는 (일본) 사람이에요? 나: 네, 저는 (일본) 사람이에요. (왕호) 씨는 (한국) 사람이에요? 가: 아니요, 저는 (한국) 사람이 아니에요. (중국) 사람이에요. (유키) 씨는 (학생)이에요? 나: 네, 저는 (학생)이에요. (왕호) 씨는 (선생님)이에요? 가: 아니요, 저는 (선생님)이/가 아니에요. (가수)예요. 잘 부탁드립니다. 나: 네, 잘 부탁드립니다. 안녕히 계세요. 가: 네, 안녕히 가세요.</p>
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Fig. 11. Example of Talking Activity

5. Discussion

The development of science and technology has brought about many changes in our lives, including education. Classes utilizing various smart devices can be also found in the Korean language education and development of many smart applications for Korean language education is ongoing. However, such applications were for individual or self-teaching and barely meant for the application of classroom education. For this reason, multilingual vocabulary application 'HanTongE' made an attempt to add it to Korean language education contents and design lessons for Korean language classrooms based on this.

For offline Korean language classes, various research and experiments have been conducted for the teaching methods to enable students to more fluently express themselves at actual situations and contexts, though too much of the class hours have been spent for presentation/description parts. In order to prevent this, a flipped learning education method for classrooms was introduced and suggested for classroom-education. Because the education method suggested in this paper has its strength of self-directed learning enabling students to become interested in the learning process and making the students the leader of classes through various activities, as it is a prior-learning utilizing mobile applications, it is anticipated to increase the educational effects.

If the learning process utilizing 'HanTongE' application was personal and one-way, the Korean language lessons at classrooms designed by this research moves the Korean language classes from private spaces to social spaces and enables learning in both directions. Because learning a language requires social interactions on top of understanding by an individual, it is necessary to enhance the expression ability even for learnings utilizing mobile applications. In addition, as the educational contents and vocabulary translation are usually built in one mobile application, it has an excellent accessibility while reducing the hassle of coming back and forth of different mobile applications.

At the moment, only HanTongE education contents for beginners have been added, but plans have been made to add intermediate, advanced, culture and TOPIK and this is anticipated to enable applications to various activities utilizing applications. In addition, as the textbooks designed for the use in classrooms are planned to be published, the education method suggested in this paper is subjected to a practical verification after applying to actual classroom classes.

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