Development of a Japanese language learning support system for international students using video content

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Abstract: In recent years, globalization has progressed, and Japan's international students have increased. However, many international students study while working part-time, and due to the impact of Covid-19, face-to-face conversation with people has become difficult. Therefore, regular study time alone has become insufficient for practicing the Japanese language. On the other hand, there are video distribution services that have become popular in recent years. Therefore, we thought we could create a language learning support system by using them. This research aims to develop a language learning support system that uses the subtitle function of a video distribution service to improve learning motivation and to solve the lack of time to learn a foreign language (the Japanese, in this case). This paper mainly reports on the development of the system by using those video content.

Keywords: Language learning support system; Language Learning with Netflix; LLN extension; python VLC module.

I. INTRODUCTION

Currently, the internationalization of Japan is progressing, and the number of foreign students accepted is increasing year by year.

As of May 2019, the government's target number of students for 2020 exceeded 300,000, and about 310,000 international students were enrolled in Japan [1] [2].

The Japanese technical college education system is also actively accepting international students by promoting overseas expansion and internationalization. Recently, a program has been started to accept international students from Thailand from the first year [3].

International students studying in Japan are required to study Japanese. However, the number of regular hours is limited, and the recent Covid-19 has made it very difficult to acquire Japanese, as it is not possible to have time to talk with Japanese people. This issue needs to be solved.

On the other hand, recently, the spread of video distribution services has progressed significantly worldwide, and along with this, various languages have been added so that movies and dramas can be dubbed or subtitled in multiple languages [5]. The dubbing and subtitles of movies and dramas are often used in language learning, and this service is becoming easier to use for foreign language learning.

Under such circumstances, in this research, we aimed to develop a Japanese language learning support system for international students using a video distribution service.

With this system, international students can learn Japanese while watching movies or dramas. The final goal is to make it possible to study while traveling or doing housework and to support the improvement of learning motivation and lack of study time.
This paper mainly reports on the development of the system by using those video content.

II. SYSTEM PROPOSAL

This system mainly uses the "Netflix" video distribution service extension "Language Learning with Netflix (LLN)", and the python VLC module. The system configuration is shown in Fig.1.

First, the learner (1) logs into the paid video distribution service "Netflix" from this system and watches video content. Then, when the proposed system is activated, the learning begins.

When using the "Language Learning with Netflix Extension", the video will automatically be paused and subtitles for that line will be displayed each time the video finishes saying each line.

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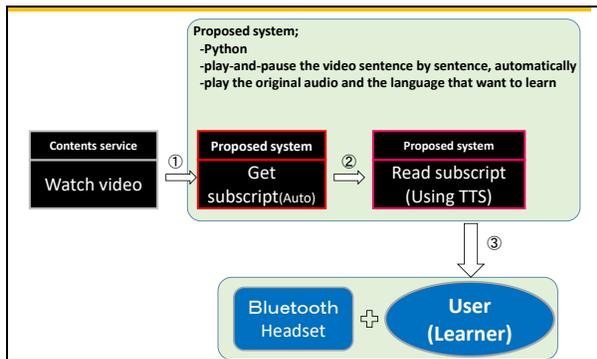
Fig. 1. The system configuration

 (2) When the video is paused, the system acquires the text of the subtitles.
 (3) The system reads out the text using the Text to Speech (TTS) function of the python VLC module. Fig.2. and fig.3. show the execution screen of the system.
 (4) Learners can listen to the read aloud voice through a wireless communication device (headset, etc.). They can hear the language they want to learn right after listening to the original audio.

For example, if learners are international students who came to Japan from Thailand and want to study Japanese while watching Thai videos, they will select Thai videos with Japanese subtitles.

Immediately after they hear the original Thai voice, they can hear the Japanese voice (by the TTS function). Since the video progresses automatically until it ends, it is possible to study the language while cleaning, exercising, or during commuting hours. This will solve the lack of regular study time.

In addition, since they can select videos that they like or are interested in, they are less likely to get bored and can improve their motivation to learn.

III. LEARNING EFFECT BY USING THIS SYSTEM

The learner can freely change the audio language and subtitle language of the video, so it is possible to combine them according to the language they want to learn. Two learning methods are explained as examples.

Use Case 1:
Fig. 4. and fig.5 show an example of the use case of the system. In this case, learners who understand Thai will be able to hear the Japanese expressions immediately after the Thai sounds, so this will be a Japanese learning experience.

Also, with this method, unlike listening to CD teaching materials or watching DVD teaching materials, you can learn while enjoying the drama, so you will not get bored easily.
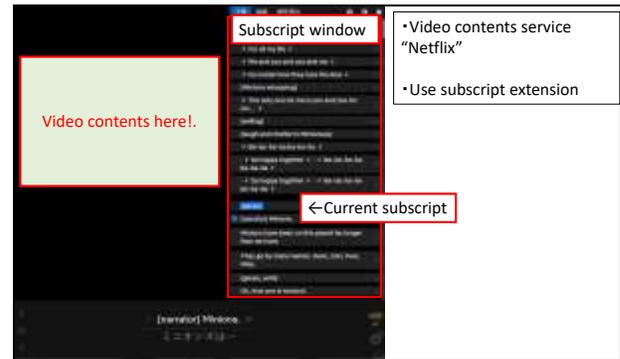

Fig.2. Execution Screen (1/2): Subscripts in the video contents
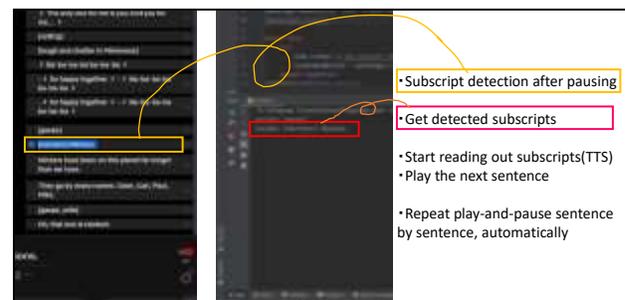

Fig. 3. Execution Screen (2/2): Getting current subscripts and reading out the subscripts by the python VLC module.
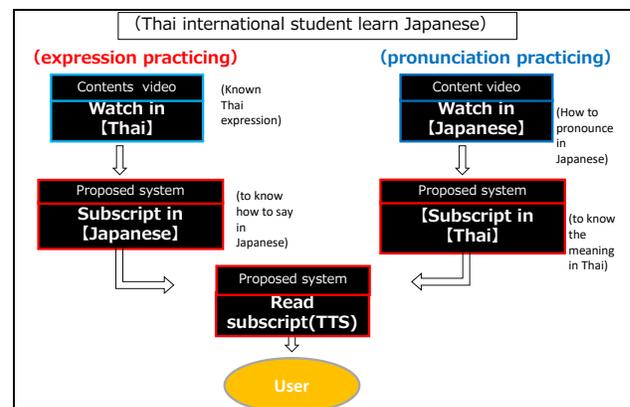

Fig. 4. Example of the use case for learning

Use Case 1(Watching Thai contents)	Use Case 2:(Watching Japanese contents)
-Listen original Thai soundtracks -with Japanese sub-scription -After Thai sound, the system will read aloud the Japanese sentences. -sentences by sentences until the end.	-Listen original Japanese soundtracks -with Thai sub-scription -After Japanese sound, the system will read aloud the Thai sentences. -sentences by sentences until the end.
So that, the learner can learn by hearing the Japanese expressions immediately after the original Thai sounds.	The learner can learn by hearing the Thai expressions immediately after the original Japanese sounds.

Fig. 5. An example of a Thai student learning Japanese while watching a Thai drama

Use Case 2:

In this case, the learner can listen to the Thai TTS provided by the system immediately after listening to the Japanese audio while watching a Japanese drama, so that they can understand the Japanese they just heard.

Effects of using the system:

Because the system plays automatically, it is possible to learn using only your ears without using your eyes or hands in combination with a Bluetooth device. Since it is possible to study while doing something else, such as traveling or exercising, we can aim to solve the lack of study time.

In addition, learners can choose their favorite video teaching materials, which reduces "boredom" during learning and leads to increased learning motivation.

Since this system can use all the languages provided by existing Netflix services, it is now possible to learn two or more languages.

Evaluation by ARCS model

We use ARCS model to evaluate this system. The ARCS model divides the learning motivation of people who use the system into four elements: "attention", "relevance", "confidence", and "satisfaction". It is a method to organize and measure by utilizing the theory of motivation.

In this method, it is possible to analyze the problem solving of the system, so it is possible to know logically where the problem of the system is and how to solve it.

For example, if you want to solve the problem of "I'm not motivated to use the teaching materials", based on the results of a questionnaire taken from users based on the questionnaire items of the Japanese version of cis, which item of ARCS should be emphasized, and which better system development can be done by planning and evaluating how to improve.

Currently, we were planning to have international students and people studying languages use this system and get an evaluation of the system. We plan to obtain evaluations in the future.

IV. CONCLUSION

In this article, we proposed and explained a Japanese learning support system for foreign students that utilizes Netflix video content using the Chrome extension tool "Language Reactor".

In this research, we were able to confirm whether the presented system works.

However, since the contents depend on the subtitle function of the existing service, it can only be provided and used by users who have subscribed to that service.

It is thought that this will be resolved if it becomes possible to support a wider range of distribution services by changing or adding methods for detecting subtitles.

In the future, we plan to have many international students use it and verify the learning effect of this system.

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