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**Piloting semi-adaptive learning on Graasp platform for  
Japanese language as a second language**

**Master's thesis**

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**Abstract**

Learning languages is a part of human intrinsic intellectual curiosity, supporting the importance of language education curricula. Language teachers often take time to search for materials to fulfill their expectations in online materials but not always be satisfied. In order to contribute to Japanese language teaching, this thesis focuses on the design and piloting semi-adaptive learning materials using Graasp platform. The research is composed of three distinct data collection phases from pre-designing to post-designing. Through the communication with language teachers as participants, this research further develops Graasp platform, which will attract learners and facilitate overcoming the complexity of Japanese language. Taken together, this study suggests that development of Graasp platform will provide a better strategy for second language learning.

**Key words:** Adaptive learning, Graasp, online learning materials, Japanese language, Second language acquisition (SLA)

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## **1. Introduction**

### **1.1. Importance of international communication**

Languages are fundamental communication tools for humans. Globalization makes our society multi-cultural and promotes international interactions. Thereafter, people become exposed to different languages. Learning languages provide us more communication opportunities and give us more tools to understand other countries and cultures. According to an estimate from The United Nations World Tourism Organization (UNWTO), international travelers in 2016 were 2.79 million people, and were 57% more than those in 1995, which were 1.78 million people (Roser, 2017). Thus, the demands for language learning support have internationally increased.

### **1.2. Second language acquisition and learning**

The educational value of language learning has been recognized by many countries and First language (L1) and L2 are offered in language curricula. When the learner succeeds in the second language acquisition (SLA), they can even become bilingual or multilingual. Study of SLA theory has started in the late 1960s, and many researches have been conducted. Walqui (2000) digested SLA from three points of views, linguistically, diversely and interactively: languages, learners, and learning process. First, the difficulties in the learning languages rely on the preliminary knowledge of the learners. For example, if learner's mother tongue and the second language are close, it will not be so difficult to study. If the learners are good at their mother tongues or they know some versions of the language (dialects, formal and informal), it helps acquire other languages. Second, learners have different goals, objectives and interests to the second language. If teachers approach the learners with a differentiated or individualized manner, or the family support the learners, these will bring a fruitful result to the learners. Third, the learning process matters. Everyone has a different preference in the learning style. If the peers interact in a positive way, learners will be motivated more. As Walqui explains the three points in the SLA theory, it is important to consider the combined perspective toward how to acquire second languages (Walqui, 2000).

Recent study shows that babies and children of preschool age can acquire the language without making big efforts when they are exposed to a second language (L2) and their linguistic ability in listening comprehension remains even when they enter young adulthood (Giroud et al, 2020). In contrast, when school-age children learn L2, they normally do not

capture the language spontaneously but need conscious efforts to learn the language. Other research suggests that the amount of exposed time to the new language makes the difference; however, relationship between input effects and age effects is not sufficiently analyzed (Unsworth, 2016). These are also explained by two different types of knowledge: “implicit knowledge” as incidentally “acquired language,” and “explicit knowledge” as intentionally “learned language” (Hulstijn, 2005). Implicit learning mainly lead to L1 acquisition, while both implicit and explicit learning support L2 learning (Bley-Vroman, 1991; DeKeyser, 2003; Ellis N, 1994; Hulstijn, 2005; Krashen, 1981; Ellis R, 2004; Allen, 2000). It has been explained that acquiring language relates to the usage of words and the way of processing information through cognition (Ellis 2019). How about adults? It has been argued that many adults face difficulties in learning second language, however, some research reveal the mechanisms of adult learners. Research reveals that some adult learners understand second language more efficiency than other learners do because individual traits such as short-term memory, long-term memory, and cognitive skill significantly influence language learning (Kempe, 2011). According to the research, “explicit aptitudes for sound, vocabulary, and grammar learning plays a significant role in oral ability” (Saito 2017). Another research on adult learners suggests that there are three factors to support autonomy of adult language learners: how to manage learning, what contents to learn and how learners think themselves in a cognitive way (Takahashi & Umino, 2020). Furthermore, interesting research shows that due to the advanced cognition mechanism of adults, the efforts of trying to learn second languages makes the outcome poorer, on the contrary (Finn et al, 2014). Finn et al. suggest not trying too hard for language learning. Hoque (2017) advocates that teachers need to pay attention to students’ personality not only to the learning theories because everyone is different in preference of types of activities and approaches for learning.

### **1.3. Learning Japanese as a second language**

Learning Japanese language as L2 has become popular. According to The Japan Foundation (2020), 142 countries and regions around the world offer Japanese language courses as L2; the report reveals that the number of institutions, teachers of Japanese language courses increased 1.2 times more between 2015 and 2018. The Ministry of Foreign Affairs of Japan explains that the popularity of learning Japanese language is caused by the increasing

popularity of Japanese pop culture (i.e Manga and Anime) as well as traditional Japanese culture and art.

The Japanese writing system uses a combination of four different sets of characters: two sets of 46 letters called Hiragana (NHK, n.d.-a) and Katakana (NHK, n.d.-b) and numerous Kanji Chinese characters (Wikipedia contributors, 2021), and Romaji alphabets that has three different notations (Wikipedia contributors, 2021a). Some research suggests that the motivation toward Japanese (MTJ) language is related to the mother tongue of the learners. For example, Finnish and Japanese have some similarities in structures as “non-Indo-European” (Takala, 2015). Therefore, the Japanese phonetic system seems to be easy for learners whose mother tongues contain similarities to Japanese. Nevertheless, The Japanese writing system seems to be more difficult for learners as Japanese writing system is unique.

#### **1.4. Research questions**

Recently, due to the Covid pandemic, people have limited opportunities to travel or attend cultural events, which makes language learners less likely to use the language skills outside of the class. Second language courses in higher education migrate from face-to-face to virtual classrooms. Teachers often use online materials to support students' online learning. However, it may not be easy for teachers to find out the best-fit online materials out of the countless resources. In addition, it is highly desirable that online materials are generated through a systematic designing process, and provide sufficient contents to support teachers and learners. Therefore, it is crucial to consider the contents that satisfy students with different levels and motivation, and to support learners with different assessment paths according to their needs. This thesis work intends to pilot the design of a digital learning material created on the Graasp platform. The aim is to support Japanese language teachers in higher education with-digital learning materials. To this end, the following two research questions will be addressed:

RQ1. What contents and features do the Japanese language teachers in higher education hope to have as the Graasp designing?

RQ2. What pros and cons do the teachers consider about Graasp material for learning Japanese?

## **2. Theoretical overview**

## **2.1. Online learning materials**

Nowadays people can easily access numerous language learning materials through the internet. Digital materials with audio-visuals facilitate self-learning and motivate learners to study. Mobile-learning becomes a popular manner to study second languages because smartphones and tablets provide opportunities to study in any place at any time (Bourekache & Kazar, 2020; Sim & Pop, 2017). Computer Assisted Language Learning (CALL) has been shifting toward Mobile Assisted Language Learning (MALL) due to the popularity of mobile devices; online language learning can be conducted through synchronous and asynchronous manners (Lotfi & Pozveh, 2019). It has been shown that learners in a synchronous manner acquire better results in vocabulary of a foreign language as they use more interacting and collaborating approaches (Lotfi & Pozveh, 2019). In synchronous learning, learners can be revitalized by discussion and feedback in online learning, however, all the learners must be online at the same time. On the contrary, in asynchronous learning, learners can study digital material at their own pace. Recent study shows that learners in the asynchronous method achieve a better outcome for L2 learning than the ones in the synchronous method (Daniel, 2020). However, in asynchronous learning learners cannot receive prompt feedback, leading to having less interaction or collaboration with peers (Almosa & Almubarak, 2005). On the other hand, blended methods composed of synchronous and asynchronous learning are ideal to complement the lack of interaction in the asynchronous learning for L2 (Perveen, 2016). Thus, each learner has a preference toward the methods with synchronous, asynchronous or hybrid styles offered by educators.

## **2.2 Adaptive learning**

When the students in the classroom are rather heterogeneous in proficiency, the class might be composed of multi-level learners from beginners to advanced level. To organize teaching activities in such mixed-level classes, teachers need to select the contents, consider the process, and modify the level to support the students (Abbott, 2019). Skinner created Teaching Machines, which was the pioneering approach for adaptive learning (Skinner, 1958). Adaptive learning is defined as a system to determine the next computational task for learners following their interaction with the previous content, leading to personalized learning (Kerr, 2016). According to Kerr (2016), adaptive learning is a part of educational technology that delivers different materials to learners according to the result of how learners reacted to

the previous task. These processes occur automatically, dynamically, and interactively. Wang (2019) proves that an adaptive learning system significantly improves the outcome of the students by proper assessment and recommendation. For example, when a learner makes a mistake on the quiz, the learner may be given an easier quiz or similar question again. Izmetiev (2012) explains that there are three different levels of adaptive learning. The first one is individualization; learners learn with different time scales toward the same goal. The second is differentiation; learners have the same goal but other conditions are all different in methods, approaches, or preferences of learners. The third is personalization; all different conditions are prepared in goals, methods or objectives. Adaptive learning has been developed toward the direction of online learning and programmed instruction (Root & Rehfeldt, 2021). Development of Artificial Intelligence (AI) has further enriched second language learning with customization (Kannan & Munday, 2018). Cai (2018) explains integrating adaptive learning into the whole curriculum supports both students and teachers in learning and evaluating. Research shows learning style integrated into an adaptive learning system plays a better role in the process and the outcome because the system can fit the style of learners' preference (Truong, 2016).

### **2.3. Graasp Learning management system in the online platform**

Dougiamas created Moodle as a platform with a learning management system (LMS) (Dougiamas 2004). Since then, Moodle has become popular in higher education and has been adopted at over 60% of higher education in the world (Moodle, 2020). In Moodle, learners can interact with teachers and peers by sending chats, writing in forums, submitting files, using study materials such as videos, having quizzes and managing the schedule. Similarly, teachers can manage learners' activity by LMS and giving quizzes with audio, multiple-choices, open-ended questions, fill-in-the-blank questions, which especially suits second language teaching (Kapsargina & Olentsova, 2020).

Graasp is a free social platform, and users can set up Moocs (Massive open online courses) for students using files of images, videos, texts and embedded websites, in addition to using applications and labs offered by the site (Graasp, 2021). In Graasp, teachers can co-create teaching materials and it is open to any subjects (Siiman, 2020). Graasp is useful for academic students and successfully integrated into higher education (Bogdanov et al., 2012; Moccozet et al., 2011). It can store files as personal space, work as a collaboration, use as Moocs with

apps and labs; all facilitated with interaction such as zoom, chats, feedback and learning analysis (*GO-LAB*, 2020). However, to the best of current knowledge, it is not yet used for Japanese language as a second language. In order to seek any novel application from a new platform, this thesis work uses Graasp as a research project.

#### **2.4. Japanese language learning as a second language**

As described in 1.3, the Japanese writing system uses a combination of four different sets of characters. In hiragana and katakana, there are two sets of 46 phonetic syllabaries. Hiragana can be used for general purposes; on the other hand, katakana is mainly used for words of foreign language origins. For instance, *あ* in hiragana and *ア* in katakana have the same pronunciation of A in Romaji spelling. Furthermore, there are additional letters: 25 letters with a voiced mark (゛) and a p-sound mark (゜), and 34 letters with smaller spelled letters including double consonant (っ). Thus, 46 phonetic syllabaries can expand more (NHK, n.d.-a). In the Japanese educational system, students in compulsory education learn 2136 kanji characters out of thousands of kanji characters (Wikipedia, 2020). Each kanji character has several different meanings and pronunciations. Recent research shows the best strategy for L1 and L2 learners to learn kanji is just to read frequently and understand the semantic and phonetic radicals (Richardson, 2020).

### **3. Methods**

#### **3.1. Research design**

Design Based Research (DBR) is a methodological approach to produce new designs and theories through a combination of analysis, design and evaluation (McKenny & Reeves, 2012; Armstrong et al., 2020). In this work, DBR has been chosen for the Graasp design. As shown in Figure 1, the process is divided into three phases to collect primary data: 1) pre-designing phase, 2) beta-designing phase, and 3) post-designing phase.

Sampling has been conducted from four teachers in Finland between January 2021 and May 2021. A qualitative research method has been used for the pre-and beta-designing phases and the mixed methods for the post-designing phase. It has been argued that mixed methods strengthen the analysis of qualitative and quantitative data, since qualitative data can

give many different perspectives or descriptions on certain topics, while quantitative data can give numerical data for evaluation or assessment (Creswell, 2002).

In order to pilot a good Graasp design, two focused questions are addressed in the three phases:

- 1) What are the difficulties Japanese language teachers faced?
- 2) How can Graasp materials be designed in order to overcome the difficulties for Japanese adult learners?

## **3.2. Sample**

### **3.2.1. Sampling**

In the Japanese teachers' association in Finland, 17 teachers (14 females and 3 males) teach or had taught Japanese as a second language at Finnish higher education. Four teachers among them voluntarily participated in this research with their consensus (*Consensus: Appendix 1*). The backgrounds of the participants are diverse in genders, the lengths of teaching careers, digital skills, and experience of publishing textbooks or online materials. The total sample of four (24% of the total population) contains three females (21% of the female population) and one male (33% of the male population). According to their curriculum vitae, lengths of their teaching carriers are 6.5, 12, 24 and 32 years, with 19 years average and 25.5 years for the maximum difference. As for the digital skill, two participants have the basic level, the others the medium and the advanced, respectively. Concerning the experiences about teaching-material creation, all participants have generated online materials, two participants have published textbooks, and the two have created websites.

### **3.2.2. Ethics**

Ethical guidelines are fulfilled. The consensus from the participants has been collected, and the data has been anonymized. Two children were cast in a short video clip in the Graasp material with parental permission.

## **3.3. Data collection**

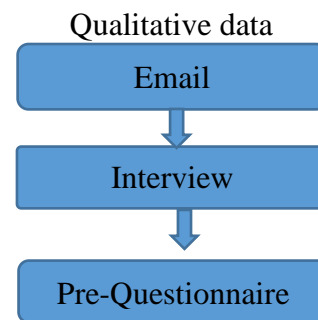
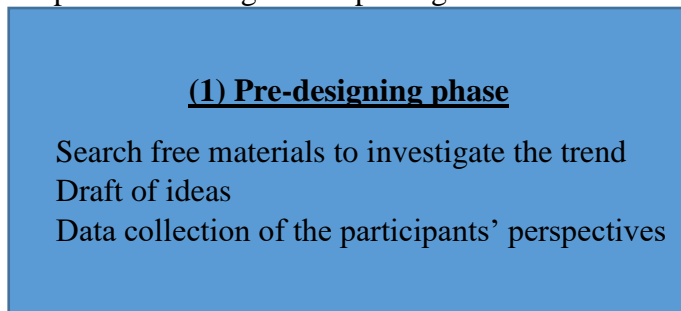
The research has been performed in three phases as follows. First, in the pre-designing phase, materials have been searched and teachers' perspectives have been collected. Collected data has been qualitatively analyzed to find out difficulties in online teaching. Pre-Questionnaire

included multiple questions and open-ended questions. In the beta-designing phase, Graasp platform has been designed and piloting. Graasp platform has been used to obtain the participants' feedback for further development. In the post-designing phase, evaluation from the participants has been collected in the mixed methods and further improvement of the Graasp materials is discussed. In these processes, the semi-structured interviews have been conducted for about one hour. Precise notes and partial recording with permission have been collected.

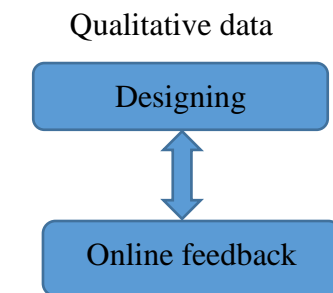
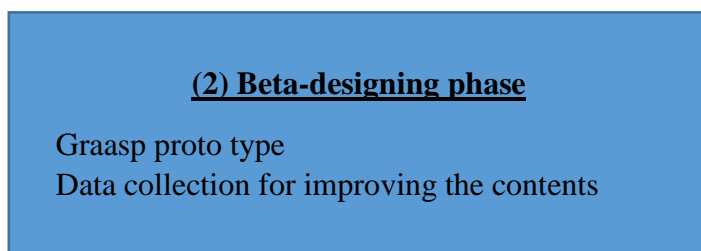
**Figure 1**

*Three phases of the Graasp project.*

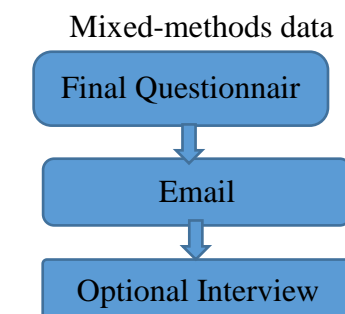
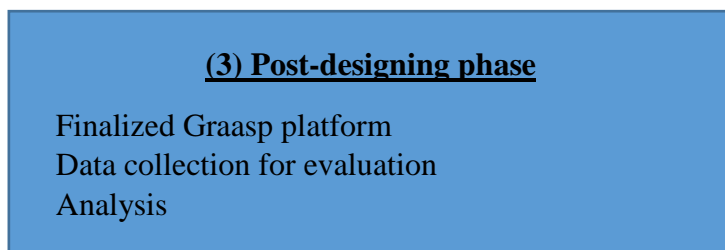
Purpose: Searching and Exploring



Purpose: Designing Graasp as a solution



Purpose: Evaluation and analysis for future improvement



### **3.4. Instruments**

#### **3.4.1. Pre-designing phase: Email, First interview and Pre-Questionnaire**

E-mail, online interviews and pre-Questionnaire have been used at the pre-designing phase in order to collect qualitative data for finding their problems as correctly as possible (*First Interview: Appendix 2*). The participants received an explanation about the research aim and plan of designing online material for Japanese language study. Thereafter, feedback from the participants was collected. The semi-structured online interview has been organized for individual participants. A precise note and partial recording with permission have been collected. If necessary, open-ended questions have been also conducted. A questionnaire written in both English and Japanese has been sent to the participants. The questionnaire contains multiple-choices that are selected from their answers, yes-no questions, and open-ended questions, which makes the data as precise as they mean. When ambiguous answers have been found on the questionnaire, further details have been followed up by emails.

The questionnaire (*Pre-Questionnaire: Appendix 3*) has some detailed questions about their teaching materials, current issues and their wishes for Graasp projects.

#### **3.4.2. Graasp platform and material making**

At the beta-designing phase, a prototype of Graasp platform was generated according to the participants' answers to Pre-Questionnaire. The participants tested the prototype. Online feedback from the participants has been qualitatively analyzed and used for collecting information on what to add, change or delete. Thereafter, the platform has been edited and improved promptly.

#### **3.4.3. Final questionnaire and final interviews**

At the post-designing phase, the final version of Graasp platform has been prepared. The participants' feedback has been collected through questionnaire, email and interview. The final questionnaire uses mixed methods of the embedded design of interval ratio scale into the qualitative data collection in order to strengthen the analysis. This focuses on the evaluation on four topics: 1) writing system, 2) operation of Graasp, 3) evaluation for the Graasp material, and 4) wishes for future materials. In order to analyze the data with more details, communication through email and the optional final interview were included. (*Final questionnaire: Appendix 4*)

## 4. Results

### 4.1. Data collection at the pre-designing phase

In a collaboration with the participants (Japanese language teachers in Finland), this study collected their opinions about what problems occur in the online teaching of Japanese language. Problems are largely categorized into three topics. First, they face difficulties to find proper materials. Nowadays too many online materials are available. Due to the limited time for material search, it is burdensome for them to find out the right materials. Second, the quality of the materials does not always meet their requirements. For example, in many materials, audio-visuals do not sufficiently cover to practice vocabulary and sentences. In some cases, the level of grammar does not meet the level of students. In other cases, the materials do not contain enough background information such as history and culture that make students difficult to study Japanese language. The teachers also want to have good materials on focused topics, e.g. greetings, food vocabulary, verbs, counters, cultures and katakana, in online materials. Third, the teachers encounter technical challenges in online teaching. For example, pair work in breakout rooms is not effective as pair work in a physical room. Cultural experience outside the classroom is limited due to the Covid-19 pandemic as well.

### 4.2. Data analysis at the pre-designing phase

Collected data is manually coded in Word and Excel files. Through the coding process, this research has become focused on “problems in online teaching that can be solved with digital materials”. Four challenges to overcome are: 1) difficult subjects, 2) limited supply of audio-visuals in quality and quantity, 3) mixed levels in class, and 4) lack of cultural experiences of students.

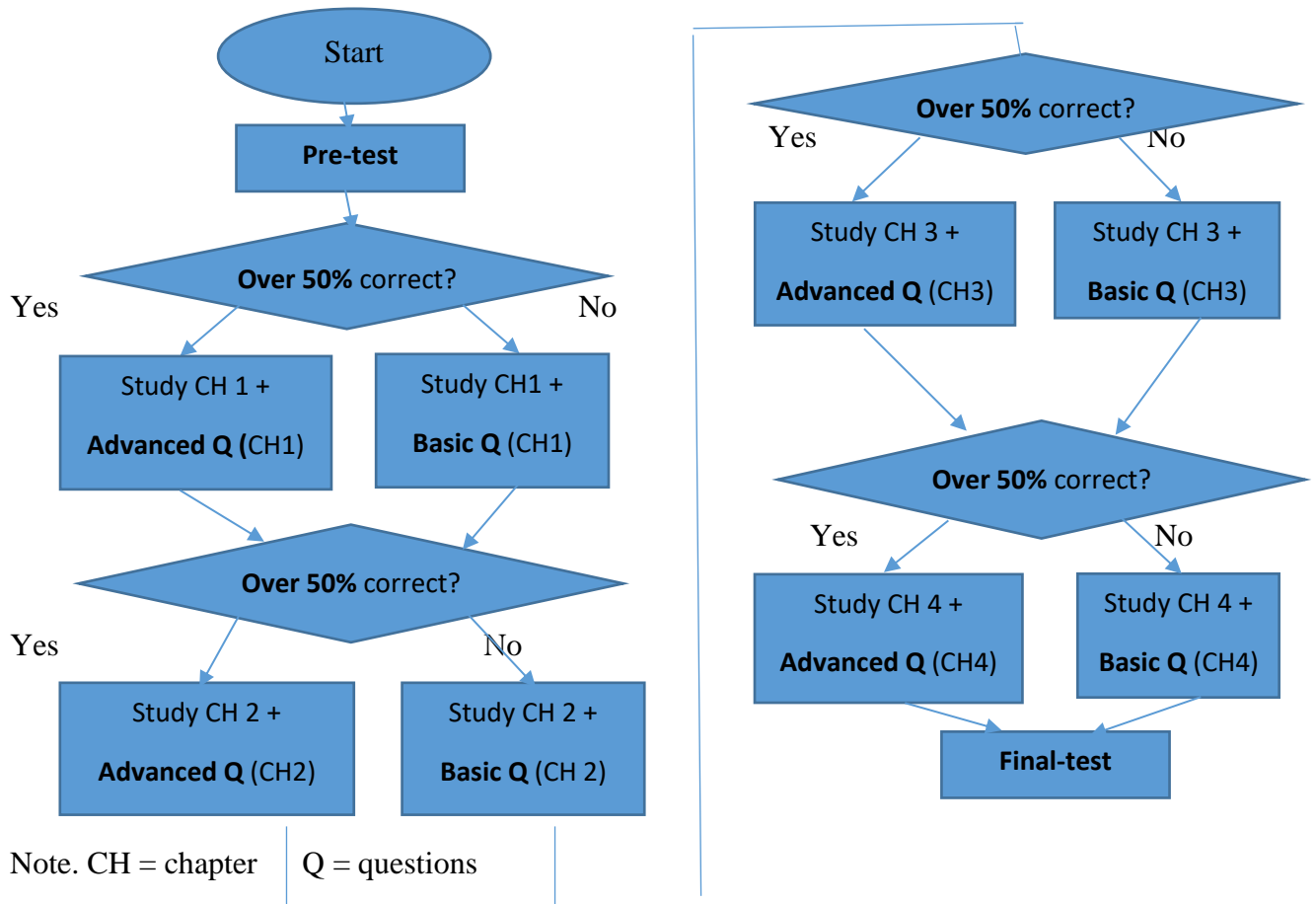
**Challenge to be addressed:** Japanese language teachers struggle to find online materials, especially audio-visual materials with sufficient quantity and quality. Free online resources are often produced without the supervision of language instructors. In addition, more drills are needed for difficult subjects with various levels. Thus, there is the need to design online learning materials with dedicated audio-visuals and texts on certain topics for Japanese teachers.

**Approach:** This study prepares texts, images, audio and videos that contain best-fit length and quality, and cultural features. The materials are composed of four chapters (greetings, verbs, food vocabulary, and counters) with a semi-adaptive learning system in Graasp platform. Pre-test and final-test in four chapters are also created as Japanese teaching materials for beginners in higher education on Graasp platform. The link to the materials is sent to the participants. Participants can log in with nickname and try the materials without registering to the platform.

Pre-and final-tests are composed of 10 questions, respectively, and learners can compare the score before and after studying. As shown in Figure 2, the result of the pre-test suggests which level of quiz (advanced or basic) to take in the next chapter. First, learners take the pre-test to gauge the level. If the score is over 50% correct, they are advised to try the advanced level on chapter 1, otherwise, the basic level, and then so on. Each chapter has two sets of five quizzes as a semi-adaptive learning system where learners can choose the level that better fits them. Both pre- and final-tests contain the same questions. All quizzes and tests contain hints and feedback for learners when they finish their answers. If learners have the correct answer on the first try, a checkmark (✓) “Well done!” in green letters appears as feedback as shown in “Pre Q1 ” (Figure 3). Otherwise, a cross mark (x) appears with a hint in red letters. Learners can try until they reach the correct answer as shown in “Pre Q” in Figure 3. If their score is over 50% correct, they know which level to take on Chapter 2 quiz. Accordingly, when they finish Chapter 4 quiz, learners take the final test and can measure the progress between pre-test and final-test.

**Figure 2**

*Flow of semi-adaptive learning system on Graasp*



**Figure 3**

*Pretest to show hints and feedback*

Pretest

- 1-1 Letters; anime, samurai...
- 1-2 Greetings; Vow, Bon
- 1-3 Quizzes (Greetings)
- 2-1 Verbs; Cherry; hot spri...
- 2-2 Tea ceremony
- 2-3 Quizzes (Verbs)
- 3-1 Foods (buy + cook)
- 3-2 Sushi; New year (Shrin...
- 3-3 Quizzes (Foods)
- 4-1 Counters; Valentine's, ...

Pre Q1: How do you say "おはよう。Ohayo" in English?

- Good morning.  
Well done!
- Good afternoon.
- Yes, please.
- You're welcome.

---

Pre Q2: What could be a right answer if you are asked "あなたの おなまえは。Anatano onamae wa?"

- わたしは アルバニアから きました。Watashi wa Arubania kara kimashita.  
"I'm from Albania."
- わたしの なまえは アイリ です。Watashi no namae wa Airi desu.  
Well done! This means "My name is Airi."
- わたしは ビールと ワインが すきです。Watashi wa biru to wain ga suki desu.  
"I like beer and wine."
- わたしは、せいぶつを おしえています。Watashi wa seibutsu o oshiete imasu.

### 4.3. Data collection at the beta-designing phase

At the beta-designing phase, several issues to improve the Graasp materials have been raised through online feedback. One technical suggestions to modify the materials such as size, color, grammar, brightness/angle of video, pace of voice, more images and uniqueness to attract learners. Other feedback is suggestions of psychological effects for learners to have virtual experience not only as travelers but also as friends, or to feel integrated.

### 4.4. Data analysis at the beta-designing phase

Through the data collection process, the following four topics have been recognized to be important for improving the contents of online materials: 1) uniqueness, 2) cultural experience as visitors, 3) home experience as friends, and 4) to interact / connect with someone during the online study (See Figure 5 how to solve problems).

**Challenge to be addressed:** The contents of digital materials can attract learners more if the contents include multiple layers of cultural experiences so that learners can have a sense of integration.

**Approach:** The contents have been modified for fun surprises and special occasions that learners may not know very well. Tutoring with detailed hints and quizzes navigates learners to understand the language, culture and people, which gives learners a sense of connection to Japanese culture and people.

Contents are improved with photos (examples in Figure 4). Figure 4 overviews the combined Pre-designing phase and Beta-designing phase.

**Figure 4**

Screenshot of improved contents of Graasp materials.

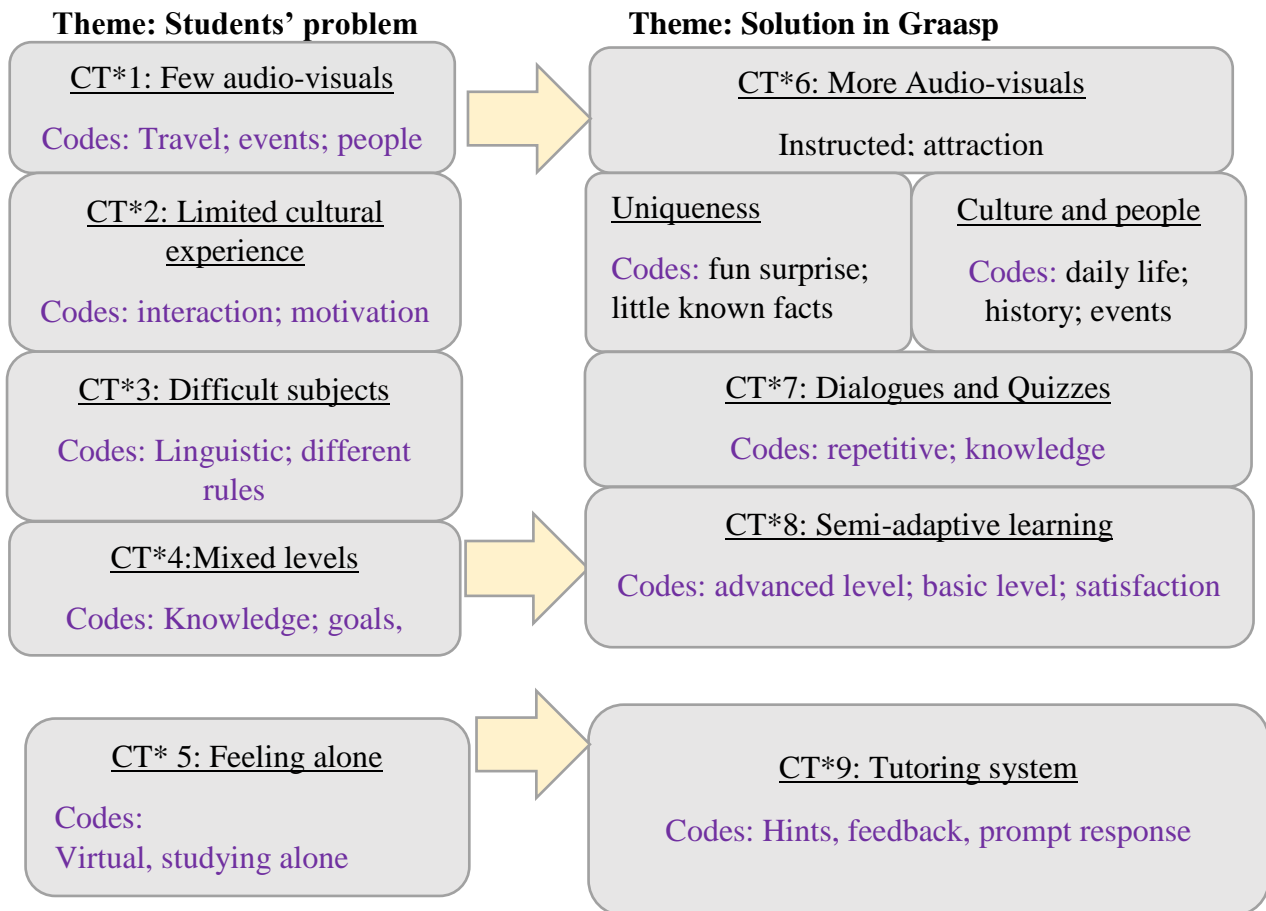
The screenshot displays the Graasp platform interface. At the top, there is a blue header with the user's name 'Risa's Thesis' and navigation icons. On the left, a vertical menu lists various lesson topics under the heading 'Pretest', including '1-1 Letters; anime, samurai...', '1-2 Greetings; Vow, Bon', '1-3 Quizzes (Greetings)', '2-1 Verbs; Cherry; hot spri...', '2-2 Tea ceremony', '2-3 Quizzes (Verbs)', '3-1 Foods (buy + cook)', '3-2 Sushi; New year (Shrin...', '3-3 Quizzes (Foods)', '4-1 Counters; Valentine's, ...', and '4-2 Children's Day'. The main content area features a photograph of a bowl of Oyako-don. To the right of the photo, the text reads: 'Pre Q4: How do you say "Do you have oyako-don?"'. Below the photo, there are four quiz questions in Japanese with their corresponding feedback in English:

- ✓ おやこどんは ありますか。Oyako-don wa arimasuka?  
Well done!
- ✗ おやこどん とは なんですか。Oyako-don towa nan desuka?  
That means "What is oyako-don?".
- ✗ おやこどんを よく たべますか。Oyako-don o yoku tabemasuka?  
That means "Do you often eat oyako-don?"
- ✗ おやこどんは たまごから できていますか。Oyako-don wa tamago kara dekite imasuka?  
That means "Is Oyako-don made from eggs?".

Below this section, another quiz question is partially visible: 'Pre Q5: How to order "てりやきチキン teriyaki chicken" at restaurant? Teriyaki is a mixed sauce made from soy sauce.'

**Figure 5**

*Graasp contents can solve some students' problems in Japanese learning*



**Note.** CT\* = Category

#### 4.5. Data collection at the post-designing phase

Data has been collected by Final Questionnaire and email at the post-designing phase.

Furthermore, one participant has been interviewed to collect the feedback in more detail. The other participants have been followed up to obtain their perspectives. Comments from the participants are largely divided into positive feedback and suggestions to further improve Graasp materials.

Positive comments pointed out that Graasp platform is very easy to operate and is user-friendly. Graasp can be integrated into Moodle as well as another learning environment. Furthermore, several comments supported strong points of Graasp platform in this project summarized as follows. Explanation on grammar is excellent such as examples of formal and informal, events in a wide range. Contents are well digested. A nice introduction of new information is useful for the learners. Images are impressive such as various pictures related

to culture, history, trends, and daily life. Ninja pictures at the airport are unique. Audio voice is professional quality, very clear to understand and comfortable for listening. The contents and rhythm of conversations are very natural. Video quality is very high with cultural aspects.

On the contrary, several feedbacks contain suggestions to further improve Graasp materials. The composition of the materials can be improved by adding more images and videos to explain the vocabulary (See Figure 5). To understand context-dependent conversations, employment of more variations in the context of voices, gender, locations and occupation might be useful. Contents of the material can be also improved. An advanced level quizzes can adopt much higher levels. More quizzes would be useful. Quizzes should have all images. The quiz with audio voice would be helpful. As the order of learning materials is slightly different among schools, an adaptation of a flexible module of Graasp contents would be potentially useful

Lastly, half participants agreed with this semi-adaptive learning system; however, another half wish to have an automated adaptive learning system that decides to give the better-fit level to learners automatically.

Next, critical points from the participants' feedback are further summarized.

#### **4.5.1. Romaji spelling (the Roman alphabet)**

Graasp platform in this research contains Romaji as a Latin script in addition to Hiragana and Katakana. Since primary languages of most learners are described by alphabets, Romaji description was considered useful for learners. However, Romaji has puzzled both teachers and learners, because this has three different notations (Wikipedia contributors, 2021a). In addition, Romaji does not refer to the right pronunciation to some language learners. For example, R in Romaji is pronounced as almost L in English, so learners misunderstand if they think Romaji has the same pronunciation as English. Thus, all participants think Romaji should not be used in the upper beginners' class when learners understand hiragana. A participant strongly argues that Romaji should not be used in teaching at all because learning in Japanese and Finnish without Romaji helps them to learn hiragana as quickly as possible.

#### **4.5.2. Graasp platform**

All participants responded that Graasp operation is easy on a PC or a laptop, and they appreciate the feedback form on each page in Graasp to interact with each other. A

participant added a comment that scrolling in Graasp may not be easy for smartphone users. Hence, I deleted some embed websites in the Graasp so that scrolling would be easier for mobile learners. All participants agree that Graasp can support all file formats for their teaching. However, the higher institutes have Moodle as a platform, the participants do not think of Graasp as an alternative platform to use. Instead, they rather view Graasp as an optional platform for either basic learners who need more help to understand the average contents in class or advanced learners who seek challenging tasks.

### **4.5.3. Adaptive learning**

Before the participants tried out Graasp, no one had good knowledge about adaptive learning (AL). After explaining this thesis project, 75% of participants showed interest; furthermore, 50% of participants perceived that AL could be an effective learning method. After using Graasp platform, all participants agreed that AL is effective in learning, and 75% are interested in implementing AL in teaching. On the contrary, 25% of participants view AL only as optional study and all tasks should be the same because higher education needs fair evaluation to all learners. The participants have different preferences on adaptive learning systems; half of them recommend the an Semi-adaptive Graasp type which allows students to study on one level or both levels, on the other hand, the other half emphasized that an automated adaptive learning system would be beneficial to learners. Some participants added that teachers, in general, are too busy to explore new technology without support from IT specialists.

### **4.5.4. Quality and quantity of audio-visual materials**

All participants complement the professional voice quality in articulation, pitch, tone, rhythm and versatility. All participants appraised the voice performance highest. They evaluate some uniqueness and playfulness in a video compared to stereotype videos that learners can freely google on the internet; for instance, all participants praised a video in which two children greeting and vowing naturally. The participants explained that the warm atmosphere children bring out welcomes learners as if learners were invited to their home. The profiles of the children in the video show the natural angle and the speed of vowing in a casual meeting. In the Graasp video, participants praised the videos with aspects of culture, history, daily life, and core beliefs of Japanese people. The participants highly evaluate a video of a speaker

talking to listeners at a good pace, which makes listeners participate in the virtual interaction. Some participants requested to make some more videos on how to order at a restaurant, how to shop at a store. All participants agreed on the high quality of the videos but some of them advised that more audio-visuals would meet their needs for the teaching materials. They also pointed out that adding more various scenes in different places with people, for example, business scenes, voices of ages and genders, useful expressions for travelers, would attract learners more, in addition to introducing some games.

#### **4.6. Data analysis at the post-designing phase**

Qualitative data is coded in the same way as the previous phases. Quantitative data is calculated for the mean and range (Table 1): Texts (mean 8.4, range 4), images (mean 7.8, range 8), voice (mean 9.4, range 2) and videos (mean 8.6, range 5). The range indicates how people have different perspectives. For example, images have a range 8. The lowest score for the images is not the image quality but the quantity. On the other hand, range 2 in voice means almost all participants had a similar evaluation. For the range 5 in the videos, some participants said high quality but more amount was needed.

Good teaching materials teach appropriate words suited to occasions through a cultural understanding of both outer-being as the visible aspects and inner being as the spiritual aspects. In order to motivate learners, the materials should be prepared by adding many audio-visuals and games with high quality. In addition, adaptive learning systems enable learners to improve their outcomes toward their goals.

**Table 1***Interval Ratio Scores at Final Questionnaire*

	P1 <sup>(1)</sup>	P2 <sup>(1)</sup>	P3 <sup>(1)</sup>	P4 <sup>(1)</sup>	M <sup>(2)</sup>	R <sup>(3)</sup>	wishes
Test-texts	10	8	8	7	8.3	3	
Test-images	10	3	10	7	7.5	7	few images
Greetings-texts	10	10	8	7	8.8	3	
Greetings-images	10	2	8	7	6.8	8	few images
Greetings-audio	10	10	10	9	9.8	1	
Greetings-video	10	10	10	8	9.5	2	
Verbs-texts	10	8	8	6	8.0	4	more drills
Verbs-images	10	3	6	8	6.8	7	few images
Verbs-audio	10	10	8	9	9.3	2	
Verbs-video	10	8	8	7	8.3	3	
Foods-texts	10	9	8	8	8.8	1	
Foods-images	10	10	10	8	9.5	2	
Foods-audio	10	9	10	9	9.5	1	
Foods-video	10	8	10	7	8.8	3	
Countings-texts	10	9	8	6	8.3	4	More practice drills needed
Countings-images	10	10	6	8	8.5	4	More picture needed
Countings-audio	10	10	8	8	9.0	2	Pace was fast
Countings-video	10	5	8	8	7.8	5	People did not appear

Note. P<sup>(1)</sup> = a participant. M<sup>(2)</sup> = the mean for the scores. R<sup>(3)</sup> = the range of scores.

## 5. Discussion

In this thesis project, I collaborated with Japanese language teachers in Finland and developed Graasp platform to study Japanese as a second language. By employing three-step approaches (of analyzing, designing and evaluating) from pre-designing to post-designing to generate Graasp platform, I received positive feedback from the participants that Graasp platform is very useful. Some participants even plan to use this platform for their teaching. Next, I argue what pros and cons I found in Graasp. Finally, I discuss future prospects.

### 5.1. Advantage of Graasp

Through my research project, I found four advantages in Graasp materials on learning Japanese language. Firstly, Graasp can be designed as a semi-adaptive learning system of learners' choice so that learners can choose according to their level, motivation and goal. Learners can even choose multiple levels if they wish. Teachers can add a Graasp link in Moodle either as assignments or quizzes for everyone, or optional material for supplemental study upon their needs. Second, Graasp supports interaction where students can send questions from each page of the material, and teachers can give online feedback. The learning management system automatically summarizes as a report about learners' scores and study time. In addition, Graasp can be used to set up Zoom meetings or collaboration tasks with classmates. Moreover, Graasp can be integrated into Moodle to facilitate language learning. Third, the Quiz app from Golabz is easy to set up quizzes with image files and students receive hints and feedback soon after answering. The Quiz app does not support audio- or video- formats for each question, but teachers can separately insert an audio or video file, the Quiz app and the File Drop app in succession in the same activity phase so that students can answer in the quiz app or send their recorded voice file as their answer. Finally, the design of Graasp platform is easily managed to choose chapters. Graasp has a left-side panel as an index to choose a chapter or section, which makes scrolling shorter in a way cohesively organized. Students can download the files from the materials to study offline.

## **5.2. Limitation of Graasp**

On the other hand, I found four limitations in Graasp. First, Graasp does not support an automated adaptive learning system. Half of the participants hope to have automated adaptive learning that provides a best-fit level to learners automatically. I would suggest integrating free software Cognitive Tutor Authoring Tools (CTAT) for an automated adaptive learning system with Moodle. CTAT can save the time for teachers by operating as a tutor (Carnegie Mellon University, 2021). CTAT records students' behaviors in the learning management system and provides a best-fit level of quizzes or tasks to each learner according to the learners' outcome, giving hints and feedback to guide (Aleven et al., 2006). Second, due to the fact the Quiz app from Golabz in Graasp does not support audio or video files, teachers need to combine additional files or apps to combine the Quiz app as I discussed in 5.1. Third, teachers may not notice students' questions or submissions until teachers log in to the Graasp platform. Fourth, Mojibake, in other words, garbled decoding, may occur if letters with other

encoding systems were decoded. I experienced all letters turned unreadable when I used some specific Chinese characters which may not be supported by the same encoding/decoding on the system by creating documents directly Graasp Space.

### **5.3. Future prospects**

Current limitations described in 5.2 will be overcome by further development of Graasp or a combination of other systems. Although I did not have time to test in this project, I assume that integration of CTAT into Japanese language teaching would have great potential, because CTAT mediated learning system can support individual learners by offering best-fit learning materials. Therefore, the learning environment may become similar to the one with a personal trainer, which will be expected to be the most effective.

## **6. Conclusion**

This thesis project developed Graasp platform that can be used for Japanese language learning. Teachers can integrate Graasp as a semi-adaptive learning system or choose automated adaptive learning systems from other software. As the content, many audio-visual formats in good quality with cultural aspects to help learners to motivate toward their study goals. Applying educational technology into teaching will allow adaptive learning to be integrated into the current teaching system. I assume that piloting an automated adaptive learning system in this thesis will contribute to improve the teaching system of second language learning.

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I am happy you are always there for me whenever I need you.

I am grateful to receive precious time and kindness from the people I love, trust and respect.

I will keep working for my future goal to contribute to the peaceful world.

*Declaration*

*I hereby declare that I have written this thesis independently and that all contributions of other authors and supporters have been referenced. The thesis has been written in accordance with the requirements for graduation theses of the Institute of Education of the University of Tartu and is in compliance with good academic practices.*

A handwritten signature in black ink, appearing to read 'Risa Shimmi', is displayed on a light gray rectangular background.

**Risa Shimmi**

**5.6.2021**

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## Appendix

### *Appendix 1: Information and Consensus*

#### **Information Sheet for Participation in Research**

Interview for online materials for Japanese language for adult beginners

Risa Shimmi

Curriculum of Educational Technology, Institute of Education,

Faculty of Social Sciences, University of Tartu

#### **Information for participants**

Thank you for considering participating in two interview sessions that will take place between February and May 2021. This information sheet outlines the purpose of the interviews and provides a description of your involvement and rights as a participant, if you agree to take part.

#### **1. What is the research about?**

In the interviews, I aim to get feedback from teachers for supplemental online materials for Japanese language for adult beginners so that I can create one to see what aspects I can improve.

#### **2. Do I have to take part?**

It is up to you to decide whether to take part. If you decide to take part, I kindly ask you to sign a consent form.

#### **3. What will my involvement be?**

You will have two interviews for your opinions about Japanese online materials for adult beginners based on your experience; before I make a material and after you try out Japanese material I make.

#### **4. How do I withdraw from the study?**

You can withdraw from the study at any point until March 2021, without having to give a reason. If any questions during the interview make you feel uncomfortable, you

do not have to answer them. Withdrawing from the study will have no effect on you. If you withdraw from the study, we will not retain the information you have given thus far, unless you are happy for us to do so.

**5. What will my information be used for?**

I will use the collected information for my thesis project, academic publications and for informing future research.

**6. Will my taking part and my data be kept confidential? Will it be anonymized?**

The records from this study will be kept confidential. Only the thesis organizers will have access to the material generated from the interviews. Your data will be anonymized – your name will not be used in any reports or publications resulting from the study. All digital files, transcripts and summaries will be given codes and stored separately from any names or other direct identification of participants. Any hard copies of research information will be kept in locked files at all times. Original data will be destroyed after it has served its initial purpose.

**7. What if I have a question or complaint?**

If you have any questions regarding this study, please contact Risa Shimmi, [risa.shimmi@ut.ee](mailto:risa.shimmi@ut.ee)

If you are happy to take part in this study, please sign the consent sheet attached.

## CONSENT FORM

Interview: opinions for supplemental Japanese language online material for adult beginners

Risa Shimmi

### **PARTICIPATION IN THIS RESEARCH STUDY IS VOLUNTARY**

- I have understood the interviews are planned **in February and May 2021**. I have been able to ask questions about the study and my questions have been answered to my satisfaction.
- I am age 18 or older, I have understood the above information and I wish to participate in the research.
- I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and that I can withdraw from the study at any time up until March 30<sup>th</sup>, without having to give a reason.
- I understand that voice recording or notes will be taken during the interview, and if video recording is needed, we ask you for permission each time.
- I understand that the information I provide will be used for research purposes and academic publications and that the information will be anonymized.
- I understand that any personal information that can identify me – such as my name, email address, will be kept confidential and not shared with anyone beyond the thesis organizers.
- I give permission for the anonymized information I provide to be deposited in a data archive so that it may be used for future research.

Participant name:

Signature: \_\_\_\_\_ Date \_\_\_\_\_

For information, please contact: Risa Shimmi, [risa.shimmi@ut.ee](mailto:risa.shimmi@ut.ee)

## ***Appendix 2: First Interview***

### **Semi-structured First interview in the pre-designing phase:**

1. Do you use textbooks in online teaching or only online materials?
2. What contents in four categories would you like to try in my project if you teach adults' beginners?
3. What would you add or improve in my draft that I showed?
4. Do you have any good online resources that you feel useful in your teaching?
5. What kind of teaching materials are you looking for in the internet?
6. What categories/ topics/ features can you find enough on the web?
7. What platform do you use?
8. Do you have adaptive learning?
9. Do many students continue to study or quit after finishing a course?
10. How do you feel about online teaching?
11. Is your expense on getting materials reimbursed at your workplace or do you have to pay for them?
12. What are the difficult subjects for students to understand?

### Appendix 3: Pre-Questionnaire

#### Pre-Questionnaire

**Please answer from your experience of teaching Japanese as a second language for adult beginners.**

大人の初心者に日本語を教えることについて、あなたの経験から教えてください。

#### Q1. What materials do you (would you) use to teach Japanese for adult beginners?

大人の初心者に日本語を教えるときはどのような教材を使いますか。

**Please click one  from A1-A6, and specify some more if you can.**

A1-A6の中から1つ選び、具体的に教えてください。

- A1:  Only paper textbook(s) 教科書のみ
- A2:  Paper textbook(s) as main and some online materials for supplemental  
教科書中心でオンラインは副教材として
- A3:  Paper textbook(s) and online materials are used half-and-half  
教科書とオンラインは同程度使う
- A4:  Mainly online materials and paper textbook(s) are for supplemental use  
オンライン中心で教科書は副教材として
- A5:  Only online materials オンラインの教材のみ
- A6:  Not specific materials to use 決まった教材はない

**A1-A6: Would you explain some more if you are satisfied to your choice or are you interested in changing your choice in the near future?** 現在の選択に満足ですか。将来的に教材を変更しようと思っていますか。

---

#### Q2. How do you prepare materials? **Please click A1 or A2.**

教材の準備の仕方について A1 か A2 を 1つ選んでください。

- A1:  All teaching materials are ready, and no need to prepare new.  
教材は用意してあるので、新たに準備する必要はない

- A2:  I need prepare materials by searching from websites, or making new or editing previous ones. 教材を探したり、作ったり、変更したりして、自分で準備しないといけない

**Q3. If you need prepare materials, do you find materials easily from specific webs/applications/sources or do you take time to search from internet? Please click A1 or A2, and specify some more if you can.** 教材の準備で、お気に入りのサイトや特定のものから簡単に探せますか。それとも探すのに時間がかかりますか。A1かA2を1つ選び、具体的に教えてください。

A1:  I know some good sources, so I do not have any difficulty to find anything necessary. 良いソースを知っているので、問題なく必要なものを探せる。

- Would you specify the websites or applications if you have any preference? お気に入りのサイトやアプリなどがあれば教えてもらえませんか。**
- 

A2:  I need time to search or prepare materials 探したり用意したりするのに時間がかかる。

- What materials are easy to search? What kind of materials are difficult to search?**
- 

簡単に探せるものは何ですか、探すのが難しいものはどんなものですか。

---

**Q4. Would you tell me if any difficult point(s) you found when adult learners study Japanese? You can click  as many as you agree to the answers.** 大人の初心者が日本語を勉強するときに難しいと思われることを教えてもらえませんか。あてはまるものが複数あれば全て教えてください。

- A1:  All learners understood perfectly in class, assignments and tests. No one dropped out and no one had any difficulty to understand any contents. 授業中も宿題やテストでも皆簡単に理解できて、誰も辞めなかったし、難しい内容は全くなかった。

- A2:  Some learners had difficulty in understanding in some contents.
- A3:  Some learners did poorly in some assignments or quizzes/ tests.

**Q5. What could be difficult for learners to understand? You can click multiple answers, and please specify in detail.**

- **A1:**  Conversation ( )
- **A2:** Pronunciation ( )
- **A3:**  Greetings/idioms/ phrases ( )
- **A4:**  Cultural differences ( )
- **A5:**  vocabulary ( )
- **A6:**  Kanji ( )
- **A7:**  Hiragana ( )
- **A8:**  Katakana ( )
- **A9:**  Counting ( )
- **A10** Honorifics/ Keigo ( )
- **Grammar**
- **Verb**
- **Adjective**
- **Noun**
- **Adverb**
- **Tenses**
- **Sentences**

What are the contents some of them feel difficult to understand?

---

A3:  Some learners had difficulty in answering properly in assignments or tests.

What could be the reason?

(Poor time management, lack of interest,

Some learners took time to understand in some contents and

Can you guess how teachers could improve learners' weak points?

A1: As each learner has different goal status, understanding level or previous knowledge, some learners feel too difficult or too easy to the same assignment/ task in class.

If so, would you describe more? For example, how much their level in the same class varies?

If you feel some learners do not understand well, what would you do?

---

A2: As some learners have difficult to understand in specific topics or categories, some of them take time to understand. (E.g. specific grammar, pronunciation, culture, or vocabulary etc.)

If so, would you describe more what was the difficult topic/category/field to them? How did you manage to help them to understand the difficult topics or categories?

---

A3: It takes time to prepare good online supplemental materials for learners. (E.g. video, audio, photos/illustration, posters, cards, texts etc.) .

If so, would you describe more? For example, what kind of materials would you like to get access? Do you have specific websites/applications/platforms to get materials or do you google with some key words randomly? Do you use both paper textbooks and supplemental online materials or do you use only paper textbooks or only online materials?

---

A5: Class size is too big or too small for good interactions in class.

If so, would describe how many learners in class would be good in a physical classroom or online learning?

A6:

A4: What is your opinions how educational technology can boost understanding for learners? Anything else that you noticed when you teach some learners some topics or when some learners learn Japanese in any specific points?

If so, would you specify in detail? For example, what kind of learners performed less effectively? Do you feel any relation between outcome associated to their motivation, their levels of understanding, their interest to something to related to Japan

#### Appendix 4: Final Questionnaire

**Final feedback** on Graasp Japanese language materials for adult beginners of Risa Shimmi's MA thesis

Please answer Q1-Q9 in English or Japanese. 英語か日本語で Q1-Q9 に、お答えください。

**Q1: How many years totally have you ever taught Japanese as second language?**

日本語を外国語として教えられたご経験は、累計何年ほどお持ちですか。

- A1: Totally \_\_\_\_\_ years. 合計の年数

**Q2: Have you ever published teaching materials for Japanese language as second language?**

日本語を外国語として教えるための教材をつくられたことはありますか。

- A1:  Yes はい ( paper text book 教科書,  website ウェブ,  online application アプリ,  software ソフト,  platform プラットフォーム,  other その他 \_\_\_\_\_)
- A2:  No いいえ

**Q3: How comfortable are you to use digital technology? 技術工学的な操作は得意ですか。**

- A1:  Very comfortable 技術的な操作が快適にできる
- A2:  Averagely Ok 平均的に操作ができる
- A3:  Sometimes need help 時折誰かに質問する

**Q4: What would be the best for Japanese learning materials for adult beginners?**

**Please choose from A1-A6. Further comment would be greatly appreciated below.** 日本語学習初級の大人の方への教材として、よいと思われる組み合わせを A1-A6の中から選び、コメントを入れていただくと助かります。

- A1:  Japanese + Romaji + English for all pages 日本語、ローマ字、英語
- A2:  Japanese + English for all pages. 日本語、英語
- A3:  Japanese + Romaji for all pages 日本語、ローマ字

- A4:  Japanese only for all pages 日本語だけ
- A5:  Japanese + the mother tongue of the learners 日本語、学習者の母国語
- A6:  Japanese + the mother tongue of the learners + Romaji 日本語、学習者の母国語、ローマ字
- A1-A6: Would you tell me your comment on Romaji if you have any other opinion above? (For example, 1<sup>st</sup> chapter could have Romaji, but not necessary from 2<sup>nd</sup> chapter?)** ローマ字について、別のお考えをお持ちの場合、コメントを入れていただくと助かります。（1章だけローマ字つきで、後は不要など）

**Q5: How do you like Graasp platform? Please choose 4 from A1-A8. Further comment would be greatly appreciated below. Graasp の使いやすさについてお尋ねします。A1-A8の中から4つ選び、コメントを入れていただくと助かります。**

- A1:  Graasp is easy to see screens by scrolling. スクロールして画面を見るのは簡単。
- A2:  Graasp is difficult to see screens due to a long scrolling. スクロールが長くて画面を見づらい。
- A3:  Graasp would be enough for me to use necessary files in formats and sizes (videos, audios, images, texts). 自分が使うのに必要なファイルの形式とサイズについて Graasp は十分対応するだろう。（ビデオ、音声、イメージ、文章）
- A4:  Graasp would not support materials as in a file format or file size for what I would like to use. ( Would you write what you would like to use? \_\_\_\_\_) 自分が使いたいファイル形式や容量は、Graasp 上で使えない。（ どんなものを使おうと思っていますか）
- A5:  Graasp is easy to operate in clicking chapters to look and answering quizzes. 見たい章を簡単に探せたり、クイズに答えたり、Graasp の操作は簡単だ。
- A6:  Graasp is not easy to operate (e.g. not easy to find chapters to look or to answer quizzes). 見たい章の検索やクイズに答える操作が簡単ではなかった。
- A7:  The quizzes system would be enough to adapt 2 levels of students. クイズの仕組みは、生徒のレベルを2つに分ける順応性があり、十分だ。

- A8:  The quiz system would not be enough; it could be much better to have more differentiated tasks according to students' understanding. クイズの仕組みは十分ではなく、生徒の理解度に合わせたもっと異なるタスクを与えられればさらに良い。
- A1-A8: **Would you tell me your comment on Graasp platform?** Graasp の学習環境についてコメントをいただくと助かります。

**Q6: How are you satisfied with 4 chapters of my Graasp sub-material? Please write in 0-10 scale below in each column; 0 is lowest, 10 is the highest. 私の Graasp 副教材について、どれくらいご満足か、0から10の評価を下記の各欄にご記入ください。0が最低、10が最高です。**

**Table 1: Satisfaction for each chapter 表1 各章の満足度**

	Texts 説明文	Pictures 写真	Audio 音声	Videos ビデオ
2 Tests (初と終)			Not available なし	Not available なし
Greetings 挨拶				
Verbs 動詞				
Foods 食べ物				
Counters 序数				

**Q7. Would you write your comment below about my Graasp material in Table 2 for good points, and in Table 3 for suggestion to improve? For example, about length, size, contents, cultural events etc. Any feedback are highly appreciated. 私の Graasp 副教材について下記に、なにがよかったを表2に、どう改善できるかを表3に、ご記入願えません。長さ、大きさ、中身、文化行事など、どんなご感想も非常にありがたいです。**

**Table 2: Good points about my product. 表2 副教材についてよかったこと**

各章	Strength 良かったこと

2 Tests (初と終)	●
Greetings 挨拶	
Verbs 動詞	
Foods 食べ物	
Counters 序数	

**Table 3: How could I improve the materials?** 表3 改善するにはどうしたらいいでしょう

各章	Suggestions こうしたらもっと良くなるというご提案
2 Tests (初と終)	
Greetings 挨拶	
Verbs 動詞	
Foods 食べ物	
Counters 序数	

**Q8. Your current/future needs for online materials that Edu-Tech could support:**

**What would you like to have in your teaching? Would you write in Table 4 for your expectation? For example, what kind of materials in what level (beginner/ middle/ advanced), would you look for?** 現在または将来、先生方がほしいと思っているものを、教育工学がどうサポートできるでしょうか。教えるときにどんなものがあつたらいいか、下記の表4にご記入いただけますと、非常にありがたいです。どんなクラス（初、中、上級）に、どんな教材をお探しですか。

**Table 4: Teachers' expectation for online materials** 先生方のオンライン教材へのご期待

カテゴリー	What would you like to have? こういうのがあれば、というご希望
texts 説明文	
pictures 写真	
audio 音声	

video ビデオ	
quiz クイズ	

**Q9: Please choose from A1-A3 on adaptive learning.**

- A1:  I am happy with my current teaching materials (e.g. quizzes) in the same condition to everyone.
- A2:  It would be good if students can choose either easier or more difficult in their tasks (e.g. quizzes).
- A3:  It would be good to have much advanced technique that a system gives easier or more difficult task to students automatically according to their understanding from the previous quiz result.
- A1-A3: Would you comment on adaptive learning if you have any thoughts?** もし、何かご意見があったら、難易度を調整できるしくみについて、コメントをいただければ助かります。

Thank you very much for your participation. ご協力ありがとうございました。

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*Risa Shimmi*

*05/06/2021*