Evaluation of mobile and multimedia resources targeted at Japanese language learners

Sara DANGUBIĆ, Juraj Dobrila University of Pula Irena SRDANOVIĆ, Juraj Dobrila University of Pula

Abstract: As the use of multimedia resources by students and teachers has been increasing over the last decade, it has become highly important to systematically evaluate the resources from various aspects, while considering students' needs and feedback, to assure better quality and provide language learners and teachers with valuable information regarding available resources, their advantages and drawbacks. For that purpose, this research evaluates 12 different applications for learning the Japanese language based on the seven categories introduced by Smith and Regan (2004). Moreover, the research provides survey results concerning the usage of Japanese language mobile apps and online tools.

Keywords: online tools, apps, mobile learning, multimedia, independent studying, Japanese language

1. Multimedia learning approaches

Multimedia learning has two major approaches: technology-centered approach and learner-centered approach. According to Mayer (2005: 7-9), technology-centered approach is focused on "the functional capabilities of multimedia" and its major question is "How can we use these capabilities in designing multimedia presentations?". This approach concentrates on the latest multimedia technology and its advances while trying to determine a technology that is most suitable or effective in conveying the information. One of the highlighted problems with this approach is the fact that it makes humans adapt to often unnecessarily posh technology rather than adapt technology to meet learners' needs. Moreover, Cuban (1986, as cited in Mayer, 2005) notes that reviews of recent educational technologies indicate that this kind of approach "generally fails to lead to lasting improvements in education".

On the other side, learner-centered approach concentrates on "an understanding of how the human mind works" with the main question being "How can we adapt multimedia to enhance human learning?" (Mayer, 2005: 9). The focus of this approach is the learner herself and its main goal is to help human cognition. Furthermore, Mayer (2005: 9) explains how the learner-centered approach is more effective in fostering learning with "multimedia designs that are consistent with the way the human mind works". That is to say, multimedia technologies can be used to assist us in getting smarter, as humans are always adapting their environment to complement their abilities and their benefit.

2. Mobile applications: classification and evaluation categories

In this research, we use the app classification introduced by Aguilar (2017: 248) that divides the apps into three groups: 1) apps directly designed for language learning with two subgroups: a) full package apps and b) separate language learning apps, 2) apps that are not directly designed for, but are useful for language learning, 3) dictionaries and translators. This kind of classification is believed to help its users to understand varieties of available apps and at the same time evaluate their potential (ibid.).

Applications designed for language learning are, as Aguilar (2017: 248) describes, "apps that provide whole-language learning packages" with various types of exercises, grammatical patterns, the possibility to interact with other students or native speakers and learners' community support. On the other side, separate language learning skills apps offer activities that help to develop different language skills separately, such as writing, reading, listening, speaking, grammar and vocabulary.

The second group are apps that are not directly designed for language learning but can be useful for that purposes as they include various settings and tools provided by the app or additional apps and extensions that can be installed. For example, language settings within an app can be changed to the target language (in this case Japanese) in order to consume already familiar content in the Japanese language and thus learn. Likewise, offering access to various language learning resources, web browsers can be used in similar ways (ex. YouTube). The speech-to-text tool provides learners with the possibility of checking or exercising pronunciation, although it's better to give preference to natural speech over artificial speech robots. Furthermore, it is valuable to mention Google extensions such as Rikaichan, Rikaikun or Toggle Furigana whose primary function is to help with reading kanji characters.

Dictionary apps such as Akebi and Yomiwa, besides being used in a standard way, can also be used for active studying. It is possible to create vocabulary lists that can later on be used for flashcard studying. It is also possible to import or export data which then further opens up various study materials.

Translation apps such as PapagoNaver offer machine translations with text-to-speech/speech-to-text or translation from an image as well. This kind of app is widely used by language learners, especially when writing texts in the target language, although some language teachers strongly oppose its usage (Aguila, 2017: 251). On the one hand, translation apps sometimes offer rather literal translation which can result in misinterpretation but can still be a useful help for understanding the general meaning of the sentence or text.

This research evaluates the first type of apps for the Japanese language according to seven categories described in Table 1 as introduced by Smith and Ragan (2004). While examining language learning applications, it is important to examine the learning context, task and content of instructional materials or programs. Consequently, while assessing language learning apps, the following seven elements should be considered: content quality, pedagogical coherence on language skills, motivation, usability, customization, sharing and feedback and self-correction. In addition, the second and third type of apps are described briefly.

Evaluation categories	Description	
Content quality	Content should provide opportunities to advance learners' skills and a connection to prior knowledge	
Pedagogical coherence	The skills provided in the app should be consistent with the language learning goal.	
Motivation	Embedded elements to engage and motivate users to use the app.	
Feedback and self- correction	Feedback and the possibility of self-evaluation should be available.	
Usability	Icons and menus should be easy to navigate.	
Customization	Individualization needs should be met (customizable setting and personalization)	
Sharing	Allowing users to share the learning process, issues or concerns in learning.	

Table 1 Categories for evaluation of apps; based on Chen (2016:42-43)

3. Evaluating Japanese language learning apps

Based on the answers collected from the questionnaire conducted among Croatian students of Japanese language and culture at the Juraj Dobrila University of Pula several apps for learning the Japanese language are taken into consideration. The evaluation is targeting the following apps: 1) from the first group of apps according to Aguilar's classification "Apps designed for LL" - Kanji Study (focus on kanji acquisition), Quizlet (focus on vocabulary acquisition), Poro, Bunpo (focus on grammar), Satori Reader (improving reading skills), Poro Grammar (focus on grammar) and Mazii (improving reading and listening skills); 2) from the second group "Apps which are not directly designed for LL" - Rikaikun, and Toggle Furigana browser extension; and 3) from the third group "Dictionary and translation apps" - Akebi, Yomiwa and Papago. Table 2 describes the results of the evaluation analysis of the first group of apps according to the categories introduced above, while Table 3 provides short descriptions for the second and third group of apps (as they are not directly designed for learning, the same standards cannot be applied).

	Pedagogical coherence	Motivation	Usability	Customizati on	Sharing	Feedback& self- correction	GROUP I
Good content quality and connection	Improves writing and reading skills; Animations that imitate correct stroke order	Appealing content and app design; They are also connected and well presented	Customer support; Menu and icons are visible	Time control; Individual content adjustment On/Off writing lines /animation	Not possible	Not completely satisfied; Shows wrong answers but does not specify	Kanji Study
Good content quality and connection	Good system for acquisition of new vocabulary; Focus on reading, speaking and writing skills	Content is well connected and coordinated	Icons and menu are visible and clear on the screen	Creating own study sets as it suits individual needs	Possible	Feedback about test results and score; Shows specific results	Quizlet
Good content coverage	Previous and new knowledge are not well connected; New knowledge acquisition system is good (partially satisfied): Focused on improving speaking and reading skills	New knowledge acquisition connecting image, audio and text; Appealing design	Icons and menu are clearly visible	Customization not adjustable; Users can choose a theme they would like to study	Not possible	Partially satisfied; Feedback when studying using multiple choice option and within challenges	Poro
Great explanations; Rich examples of grammar usage	Previous and new knowledge are well connected; Good connection Improving all skills; Focus on speaking and reading	Full access payment	Menu and icons are visible	-Partially satisfied -On/Off furigana	Not possible	Showing and correcting mistakes	Bunpo
Diverse content and topics; Available as app and internet site	Focused on improving speaking and listening skills	Appealing design	Menu and icons are visible; User support av.	Various customizati ons and text adjustment available	Possible	Not possible	Satori reader
Plenty of examples; Various studying possibilities	Focused on strengthenin g speaking and listening skills	Elements and content within the app are well connected	Menu and icons visible	On/Off furigana and romaji	Not possible	JLPT test with feedback	Poro Grammar
Multifunctional Connects user directly to the content of interest while helping with comprehension	Improving speaking, reading and writing skills	Elements are well connected and should motivate users to use it frequently	Menu and icons are well visible; Available user support	Various adjustments available	Not possible	Not possible	Mazii

Table 2 Evaluation of apps designed for Japanese language learning

Table 3 Evaluation of apps not directly designed for LL, dictionaries and translation tools

П	Rikaikun	The online tools whose primary function is to help with reading and understanding Japanese. It operates in a way that user puts the cursor on the word or kanji and gets a pop-up window with all the readings and meanings. It's managed easily by on/off function and it consists of a dictionary-based information.
GROUF	Toggle Furigana	It is also a browser extension, but it is slightly different than Rikaikun. This tool helps in a way that provides users with furigana readings for all online texts. So, if encountered with unknown kanjis in a text, this tool makes reading easier, although meanings are not provided.
GROUP III	Akebi - dictionary	Elements in the app are well connected with a lot of examples and animations. Design is appealing and functions are visible and clear. Text adjustment, show/hide furigana and romaji are available. Strengthening vocabulary acquisition as well as speaking skills. Disadvantage: no feedback is available.
	Yomiwa - dictionary	Elements in the app are well connected with a lot of examples and animations. Design is appealing and functions are visible and clear. It has in-app learners' community for asking questions etc. Disadvantage: no feedback is available and sharing is not possible.
	PapagoNaver – translation app	Available as app and online tool. Contains a phrasebook, offers full website translation, word cards for learning but also allows to make personalized set by adding words to favorites, possible sharing outside the app, offline translations, phonetic settings available as well as text customization and several other options. Translates from image, practice conversation and speech recognition.

The evaluation of apps designed for Japanese language learning revealed that Quizlet fulfills all seven elements and its special advantage is monitoring learner's vocabulary acquisition and providing feedback to learners. Rikaikun showed to have more detailed information on words and more useful options than the other browser extension. Among dictionaries, Akebi proved to have the most advanced functionalities with appealing design, animations, vocabulary acquisition adjusted to different levels, import and export of data.

4. Survey results about the usage of Japanese language mobile apps and online tools

We conducted a short questionnaire targeting 47 students of Japanese language and culture from the Juraj Dobrila University of Pula in order to evaluate students' usage of mobile apps and multimedia when learning the Japanese language, their attitudes about the usefulness of the tools as well as the problems they are facing while learning. The questionnaire was written in Croatian language and was conducted electronically via Google Forms.

The questionnaire has the following goals: 1) to find out if students are using applications and online tools while/for studying the Japanese language, 2) how frequently they are using them, and lastly 3) whether they find them helpful or not. The questionnaire is divided into two parts. The first part collects information relevant for the research such as years of study, the last grade acquired in the Japanese language class and questions regarding previous contacts with Japanese language and related apps and online tools usage (prior to enrolling into the University). The second part is more detailed and consists of 30 questions aimed at letting the students evaluate apps they use by giving them points from 1 (not useful at all) to 5 (very useful) and by describing them in open-ended question. It can be divided into three segments: 1) writing segment focused on apps that help acquire hiragana, katakana and kanji; 2) vocabulary, grammar and speaking segment focused on apps that help acquire new vocabulary and grammar and have listening exercises; 3) on-line tools and digital content. Since the targeted group were students from all years, freshman to graduate, the assumed average age is between 20 and 23.

Regarding the first part of the questionnaire, the survey showed that most of the students (66%) did not study the Japanese language prior to enrolling into the University. Most of the students who were studying the Japanese language before enrollment (total of 16 students), studied it for about a year following by those who studied for two years. Students who studied few months, six months, three or five years were in a lower percentage. Furthermore, the answers showed that these students mostly applied the self-studying

method using apps and online translators (36.8%) while others were learning with the supervision of a teacher, tutor, by attending language courses and similar.

The second part of the questionnaire revealed that only 7 (14.89%) of the students were using apps for learning hiragana (4 out of 13 expected freshman year participants) and 8 (17%) of them were using apps that teach katakana (5 out of 13 expected freshman year participants). Usage frequency grade for these apps is 2.8 for hiragana apps and 3.12 for katakana apps (1 'I never use it' to 5 'I use it every day'). Average app satisfactory grade is for hiragana 4.5 and 4.12 for katakana (1 'dissatisfactory' to 5 'very satisfied'). From these results it is perhaps possible to conclude that katakana is somewhat harder to learn and accordingly it requires more frequent app usage while the general satisfaction with both apps shows that students assessed these apps as helpful for learning the Japanese language. Regarding apps that assist with learning kanji characters, the survey showed that out of 47 participants 39 (82.97%) use them. On the same scale as aforementioned, the average usage of these apps is graded 3.56 by the students, while the average app satisfactory grade is 4.2 which indicates students are generally content with the options apps are offering. From these data, it is clear that the need for these kinds of apps is much higher and students need more help in this area of the Japanese language. Furthermore, it can be concluded that kanji characters are more complex and students more frequently face difficulties so they seek ways to make the learning process easier. It is interesting that more than half of the students listed KanjiStudy as their "go-to" app. 32 out of 47 (68%) students use apps for learning vocabulary and they graded their frequency of use with 3.78. The participants answered with an average grade of 4.43 to the question "To which extent do you think these kinds of apps are helpful for your independent learning and Japanese language acquisition?". It can be assumed that there are no bigger problems with vocabulary apps and even though they are not used on daily basis, they are still a valuable tool to help with learning. On the other side, only 9 (19.14%) students use apps for speaking practice, whose frequency of use is graded as 3.37. Some of the most frequently listed apps are Poro: Practice listening & speaking Japanese, Lingo Deer and YouTube. The average usefulness of these apps is graded with 4.12 which may indicate that, even though they are less used for speaking practice than for some other components, some students still practice speaking and these apps become very useful with the lack of native speakers. Furthermore, apps that focus on grammar are used by 15 (31.91%) students and among the most frequently mentioned ones are Bunpo, Poro: Japanese Grammar and Lingo Deer. Results showed that the average usage is graded with 3.6 and general usefulness with 3.73. Finally, the students repeatedly mentioned online tools (such as jisho.org) which they use for searching up unfamiliar vocabulary and kanji characters. They also mentioned how they listen to Japanese podcast, music and watch vlogs, use YouTube to hear native speakers, read manga and use browser extensions such as Rikaichan, Rikaikun and Toggle Furigana in order to consume Japanese content easier.

According to the collected data, it is clear that the students use apps for kanji characters and vocabulary most frequently. Freshman year students use online tools and vocabulary apps the least, while the rest of the students use apps with speaking practice and grammar the least.

According to the answers they have given in the questionnaire, students were sorted into five categories in order to investigate if there is any correlation between the habits of using (or not using) the apps while learning the Japanese language on their own and their grades at the University. The categories are as follows: 1) Students who did not learn the Japanese language at all prior to enrolling into University and did not (and still do not) use apps while studying, 2) Students who did not learn the Japanese language prior to enrolling into University, but did use apps or multimedia to learn more about the language and continued to use it after enrollment, 3) Students who did not study the language nor used apps or multimedia until they enrolled into University, 4) Students who studied Japanese language and used apps or multimedia prior to enrollment and 5) Students who studied the language before enrollment but started using apps or multimedia only after enrollment. Results showed that group 1, students who did not study Japanese before enrollment and had the least contact with apps and multimedia has the lowest GPA (3, 4/5) as well, while group 5 has the highest GPA (4, 6/5).

It could be assumed that the results of group 5 are due to acquiring basic knowledge in the Japanese language before starting to use multimedia, apps or online tools to boost their language knowledge. That is to say, their learning did not rely on modern methods from the very beginning as opposed to group 4, which

has a somewhat lower average (GPA 4,2/5). Of course, in order to get quality insight regarding the connection between grades and apps usage, it is necessary to have more participants. However, if we divide these 5 groups into only 2, one which had or has contact with multimedia and apps and the other which did not and still does not have any contact with it, we can see that 1st groups' average GPA is 3,92 and 2nd groups' is 3,42. Accordingly, even though the difference isn't very big, we can consider that the most effective method of studying the Japanese language would be the combination of traditional and modern. Also, the result might indicate that students with higher grades also have higher motivation to use additional aids and resources. Finally, it can be concluded that knowledge can be acquired and boosted through apps and multimedia.

6. Conclusion

Multimedia is a powerful tool that allows us to consume new information faster and in much bigger quantities than ever before. Moreover, with technological development, mobile phones became little portable computers which are very useful in this new fast way of living in the 21st century and opened the possibility of learning "on-the-go". Learning via mobile phones enables access to information anywhere and anytime, furthermore, the users can manage how, when and what to learn as it suits their wishes. When learning a new language, in this case, Japanese, it is important to use it as much as possible, which was difficult before as the possibility of getting in contact with native speakers was limited, but technological advancement made it possible and easier.

Furthermore, nowadays we have access to various Japanese language learning apps but the challenge that users frequently face is finding good quality apps. Apps and online tools, of course, have their advantages and disadvantages but the questionnaire answers showed that almost all of the students (95.74%) think apps and online tools are very helpful while studying the Japanese language independently and the most frequently listed disadvantage was paying for full access. Despite that, some students stated how paying for the app keeps them motivated to actually use the app daily. On the other side, some students expressed that due to the large number of low-quality apps available, they lose interest very easily so they stop using the app quickly or they do not know how to find a good quality app. Therefore, it is important to provide an evaluation of various apps and guide students with information about the most useful functionalities and tools. Even though the general opinion was positive, there were also some students who expressed that nowadays too much of a focus is on technology and independent learning while the traditional learning and techniques are not talked about enough.

Multimedia-assisted learning today greatly facilitates the acquisition of new knowledge because it makes the content more interesting and thus might encourage the users who lack the motivation to study. By stimulating the senses of hearing and sight with good multimedia design, images, video and audio contents, multimedia not only makes independent learning interesting but enriches the lectures and thus enables the professor's quality knowledge transfer. Furthermore, as questionnaire results showed the connection between GPA and multimedia usage, it can indicate that continuous usage of apps and online tools is somewhat related to better acquisition of the Japanese language.

Reference list

Chen, X. 2016. <u>Evaluating Language-learning Mobile Apps for Second-language Learners</u>. Journal of Educational Technology Development and Exchange (JETDE), 9(2). 39–51.

Mayer, R. E. 2005. <u>Introduction to Multimedia Learning</u>. In R. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning (Cambridge Handbooks in Psychology)*. 1–16. Cambridge University Press.

Rosell-Aguilar, F. 2017. <u>State of the App: A Taxonomy and Framework for Evaluating Language Learning</u> <u>Mobile Applications</u>. *CALICO Journal*, 34(2). 243–258.