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The Development of "Manabu Bunpou" Smartphone Application for Basic Japanese Grammar Learning

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A B S T R A C T

One of the difficulties students experience in learning Japanese grammar is limited study time. Practical learning without limitations of space, time, and place through an e-learning system allows students to learn independently, efficiently, and effectively which also can be applied as a solution to improve students' mastery of Japanese grammar. This research applies the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model in developing e-learning application designs on smartphones. The data in this study were collected using pre-experimental methods and by distributing Likert scale questionnaires to fifteen students. The application developed is named "Manabu Bunpou", validated by the IT team, and consists of JLPT level N4 grammar practice tests, several levels, and quizzes. The material including ninety-three Japanese sentence patterns developed from several sources and also contains conversation videos accompanied by texts. From the questionnaires distributed to Japanese language learners, the "Manabu Bunpou" application is considered highly accessible, helps improve understanding of basic Japanese grammar, and supports independent learning. However, according to the participants, the materials in the application are still limited and hence need further development.

INTRODUCTION

Japanese is one of the foreign languages studied and popular in Indonesia, based on data from the Japan Foundation in 2012, the number of Japanese language learners in Indonesia reached 872,411 people, in 2017 the Japan Foundation again released a survey of the number of Japanese language learners in 2015, totaling 745,125 people, in 2018 there were 709,479 people and in 2021 there were 711,732 people. This number has increased, but Indonesia is ranked second worldwide as the most Japanese language learners after China and first in Southeast Asia based on the Survey Report on Japanese Language Education Abroad (2015, 2021).

However, there are still problems for Japanese language learners in the learning process because Japanese and Indonesian have large differences regarding linguistic elements such as letters, kanji, and Japanese grammatical structures (*Bunpou*).

Despite this surge in language education, introducing Japanese as a foreign language constitutes difficulties in teaching and learning, as highlighted in a few studies. In a recent review of language training needed by State Department employees, Everson (2011) claims that languages such as Japanese and Chinese take at least four times longer to learn and master than European languages. Racoma (2018) stated several possible factors that may dictate the ease of learning, such as unfamiliar accents, morphology, and a huge deviation of the writing system from the Roman alphabet in some natives (Everson, 2011; Racoma, 2018; Quintos, 2021).

In the Japanese Language Proficiency Test (JLPT), many students find it difficult to learn Japanese at each level, especially in vocabulary (*Moji Goi*), grammar (*Bunpou*), reading (*Dokkai*), and listening (*Choukai*). The research was conducted to improve and solve problems related to Japanese language education and teaching, including how students can pass the Japanese Language Proficiency Test (JLPT) starting from levels N5, N4, N3, N2, and N1 because it is one of the requirements for graduating from higher education is to graduate from JLPT N3 and the requirement for prospective workers to Japan who study at educational institutions is to graduate from JLPT N4.

One solution to solve the above is to create an application via smartphone called "Manabu Bunpou" aimed at Japanese language learners in understanding Japanese grammatical structures (*Bunpou*) JLPT level N4 as an easy and fun interactive media.

Every year the Japanese government holds the Japanese Language Skill Test (JLPT) carried out worldwide, including in Indonesia. This test has been the Japanese language competency certification standard for foreigners worldwide since 1984 as explained on the Jlptonline.or.id website. The instructors held this test to assess students' ability to understand Japanese, and students can use the test results for study requirements or job applications. Since the first test, 7,000 people from 15 countries participated in it; then in 2011, the number of participants taking the JLPT increased to 610,000 people in 62 countries. In 2018, more than 1,168,000 participants in 86 countries took the JLPT, and in 2023, there were 787,954 exam takers. This test makes the JLPT the largest-scale Japanese language exam in the world (Japan Foundation, 2024).

The efforts to make it easier for students to understand learning materials must teach materials and Japanese language learning media that can support graduation. Ali (2010) defines learning media as anything that can convey messages and stimulate students' thoughts, feelings, attention, and will to encourage the process. Forms of media are used to enhance the learning experience to make it more concrete. Susilana and Riyana (2009) argue that learning media always consists of hardware and the message elements it carries (message/software). Learning media is a tool that teachers use to support the explanation of learning materials. The role of learning media is critical and has an equal position with the teaching method (Sanchez-Sepulveda, Fonseca, García-Holgado, García-Peñalvo, Franquesa, Redondo, & Moreira, 2020). With learning media, the teacher can deliver the teaching material to be more concrete and make students easier to absorb the learning material (Peebles, Bonus, & Mares, 2018; Rachmadtullah, Zulela, & Sumantri, 2018). In this technology era, the teacher usually uses multimedia resources such as graphics, videos, and animations can help students better understand and retain information (Kirkorian, 2018; Kissi & Dreesmann, 2018; Dewanty, Haristiani, Sadewo, & Tasman, 2024). Many learning media in the teaching and learning process, such as smartphones and electronic devices (Bao, Xing, Xia, & Lo, 2019; Rohaeti, Bernard, & Primandhika, 2019). Thus, it is very important to note that learning media requires equipment to present messages, but the most important thing is not the equipment, but the message or learning information delivered by the media.

Learning media supports diverse human responses. They match established competency standards and learning goals. To support these learners, they need more than one medium. They need to be able to enjoy learning. Many learning media are made using various applications that require teachers to have an understanding and skills in Information and Communication Technology (ICT). By understanding ICT, it can make it easier for teachers to create various media, such as making learning videos from Kinemaster, Filmora, and so on (Ritonga, Ritonga, Tangse, Putri, Ritonga, & Ritonga, 2023). It is a human need. It usually looks for objects in the environment to help the senses. It occurs with awareness or without awareness. Also, the media plays a big role. It makes learning better and more fun. Multimedia-based learning media is here to solve this problem. Multimedia can touch all five senses, sight, smell, taste, hearing, and touch.

The Computer Technology Research (CTR) says that people can only remember 20% of what they see. They can remember 30% of what they hear. But people can remember 50% of what they see and hear and 80% of what they see, hear, and do at once. Besides that, according to Munir (2012), multimedia can provide benefits in conveying and receiving information. These include being clearer. It uses images and animations that are easy to understand. It is easy to make changes because the computer stores all information. You can continue to update and develop it. It is also more interactive and frees the developer to apply his creativity to be clear and look good.

There has been a lot of research on how to learn Japanese grammar. For example, Judiasri (2014) researched digitalization-based Drill *Bunpou* to improve Japanese language competence, Sastranegara (2017) researched the role of quiz tests in increasing learner motivation in understanding basic level Japanese grammar, and Herniwati and Fatmariana (2018) developed a smartphone application "*Henka Do*" changes the Japanese verb - te. Furthermore, Haristiani, Arifin, Prajayanti, Hasby, Taufik, and Anggarini (2019), Rifai, Haristiani, and Risda (2020), and Haristiani and Rifai (2021) developed the "Gengobot" application as a medium for learning Japanese grammar based on the Japanese Language Proficiency Test (JLPT) at the N3 level. As time goes by, fun learning media and methods must still be developed to improve the quality of abilities of Japanese language learners.

The explanation above shows an improvement in the multimedia learning process. This media provides rich content that meets a variety of human sensory needs, especially if the media is easily accessible, such as applications on smartphones. Students can use smartphone devices, with various applications in them to support learning activities, wherever they are. The following is a theoretical framework of smartphones for learning in mobile learning (Firmansyah, 2020). 1) Conceptualization of mobile learning: The concept of mobile learning is a learning process that is centered on students learning various materials so that they gain experience when they learn through mobile devices. Mobile learning is part of the new conception of society. Research and reflection on mobile learning must stimulate multidisciplinary and interdisciplinary thinking and methods in education. 2) Mobile device application for knowledge management: Implementation of mobile applications must be able to create a different learning environment and increase student motivation. A teacher must know the experiences of students while learning and find strategies to improve the learning process. Mobile learning can encourage students to acquire, store, share, apply, and create knowledge. 3) Mobile device application for language learning: Language is the main thing in social life because people who are proficient in language will be able to communicate and socialize well. Smartphones with adequate internet network support can be good language-learning media. 4) Existing learning environment: The current learning environment aims to integrate learning activities on the spot so students can interact appropriately with each other and the environment.

Especially if the media is easy to access, such as an application on a smartphone, they prove the technological progress of cellular telephones by not only enabling users to make calls and send messages but also to learn and access a wealth of information.

The Ministry of Communication and Information of the Republic of Indonesia stated that smartphone users in Indonesia in 2020 reached 78 million users and 143 million internet users out of Indonesia's 265 million population. This matter makes the prospects for using smartphone-based learning media very good. With the emergence of smartphones, they are active in observing, demonstrating, doing, and so on. Apart from that, smartphones are also very suitable to be used as an online learning medium without having direct face-to-face meetings between educators and students (Nahak, 2022). This matter makes smartphones an effective tool to accompany all activities, one of which is learning activities that can make it easier for users, including Japanese language learners. Thus, the "Manabu Bunpou" application can help students master Japanese grammar at JLPT level N4 better.

Smartphones are proof of the technological progress of cellular telephones which can not only be used for making calls and sending messages but can also be used for learning and obtaining wider information. The Ministry of Communication and Information of the Republic of Indonesia stated that smartphone users in Indonesia in 2020 reached 78 million users, with 143 million internet users out of the 265 million population of Indonesia. This makes the prospects for using smartphone-based learning media very good. This statement is in accordance with Wahid and Cerya (2022) state that good media is media that is easily accessible to students and teachers anywhere and anytime. Such as Android or smartphone technology that is used as a learning media that can provide a learning material

application that has efficient and effective impacts that learners can download related to the material required so that it can be repeated anytime and studied independently (Jengathe & Rojatkar, 2015; Arifin, Prajayanti, Hasby, Taufik, & Anggarini, 2023). With the emergence of smartphones, students can be active in observing, demonstrating, doing things, and so on. Aside from that, smartphones are also very suitable to be used as an online learning medium without having to have direct face-to-face meetings between teachers and students (Nahak, 2022). This makes smartphones an effective tool to accompany all activities, one of which is learning activities which can make it easier for users, including Japanese learners.

Thus, it is hoped that the development of the "Manabu Bunpou" application on this smartphone can help students master Japanese grammar at JLPT level N4 better.

METHODS

This research uses quantitative descriptive research to analyze students' views on the use of the "Manabu Bunpou" smartphone application as an interactive learning media that applies ADDIE (Analysis, Design, Development, Implementation, and Evaluation) to determine the development of the media used, including its quality and effectiveness. The quality and effectiveness of the media were tested by validation using a Likert scale. The data was tested using an instrument consisting of 15 questions distributed on aspects of learning media, interactive and fun.

In every learning media development process, there should be a learning design model which is referred to as a development procedure guide (Segaran et al., 2014). The ADDIE model is one of the most widely used learning design models. ADDIE has five phases in learning design, namely Analysis, Design, Development, Implementation, and Evaluation (Adoobie, 2015; Hess & Greer, 2016; Mitsui, 2014). In addition, ADDIE is a useful framework for studying, creating, and implementing development and learning programs which makes ADDIE have an important enlightening effect on the development of contemporary education (Mayfield, 2011). The stages of the ADDIE model can be seen in Figure 1. The implementation of ADDIE in developing the "Manabu Bunpou" application on smartphones is described as follows.

1. Analysis Stage
At this stage, the students' Japanese skills and Japanese textbooks are analyzed as well as the JLPT N4 practice questions, especially those in accordance with JLPT N4 which will later be applied to the application.

2. Design Stage
At this stage, the developer prepares everything necessary for application development based on data in the previous analysis stage including application flowcharts, application design, and database preparation taken from (1) *Try Nihongo Noryoku Shiken N4* (2013, Ask Publishing), (2) *Donna Toki Dou Tsukau, Nihongo Hyougenbun Bunkei Jiten* (2010, Alc. Press inc.), (3) *Nihongo Noryoku Shiken JLPT N4* (2012, 2018: Japan Foundation), and www.wkwkjapan.com. The software used in this development includes Microsoft Office PowerPoint 2019, iSpring Suite 9, Website 2 APK Builder as the application database used, and Sublime text editor for writing the application programming language.

3. Development Stage
The "Manabu Bunpou" application on smartphones was developed based on a flowchart that had been created previously. Then the application is tested by experts in their respective fields to find out the drawbacks that can be corrected in the application. To strengthen the results of the trial, several experts consisting of media experts and material experts were also involved to provide feedback on the product being developed.

4. Implementation Stage
At this stage, the application was tested on 15 Japanese students in the 4th semester to find out students' responses regarding the use of the application developed in learning. Apart from that, there was a team of IT experts who assessed the suitability, advantages, and disadvantages of the "Manabu Bunpou" application being developed.

5. Evaluation Stage
The evaluation stage was carried out to determine the advantages and disadvantages of the application developed based on data collected from 15 Japanese students and two people from the team of IT experts, as well as one expert in Japanese language education as a validator through a questionnaire at the implementation stage. The following are the research stages:
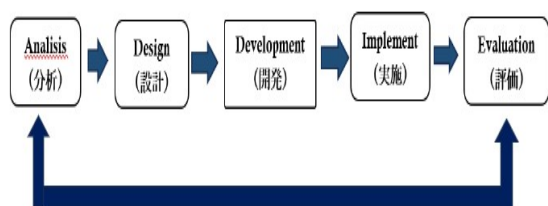
Figure 1: ADDIE model stages (adopted from Tanaka, 2014).

The smartphone application development includes an explanation of the stages of application creation, application design structure, and development of *bunpou* N4 material from explanations of sentence patterns to example sentences, conversations equipped with audios, and quizzes on JPLT N4 questions.

The instruments used in this research include a Likert scale questionnaire filled in by respondents, namely students and experts. The results of the questionnaire were analyzed using a qualitative approach and then revised according to the results of the existing responses. Apart from that, data results in the form of scores obtained from Likert scale questionnaires can be analyzed using quantitative descriptive analysis in the form of average calculations (Sugiyono, 2015). The results of the average calculation are then converted into a percentage to conclude whether the product being developed is suitable for use using the feasibility criteria in Table 1 below.

Table 1: Feasibility percentage scale according to Arikunto (2006).

Percentage of achievement	Interpretation
76 - 100 %	Very Feasible
56 - 75 %	Feasible
40 - 55 %	Fairly Feasible
0 - 39 %	Not Feasible

FINDINGS AND DISCUSSION

Application Development and Data Analysis

The *"Manabunpo"* application is an application developed on Android smartphones as an effort to help Japanese learners regarding bunpou material, especially at the JLPT N4 level. This application contains material in the form of conversation videos, conversation texts, and grammar discussions along with example sentences. There are also practice questions that are equipped with the discussion of the answers.

There are several stages in creating this application under the ADDIE stages (Segaran, Ali, & Hoe, 2014; Adoobie, 2015; Hess & Greer, 2016; Mitsui, 2014). The stages carried out are the same as the stages in developing learning media. Namely the Analysis, Design, Development, Implementation, and Evaluation stages.

In the analysis stage, the need for students to create interactive learning media for independent learning *bunpou* JLPT N4 via smartphone.

In the design stage, there are some steps as follows.
1. Create the application concept
   The design created at the initial stage determines the description of the application that will be created later. At this stage, researchers determine what features the application will have, what the layout is like, what the design structure is going to be, and so on.

2. Prepare the design assets.
   Design assets that are prepared include images or videos that will be included in the application, color schemes that will be used, and various other things related to making the application look interesting.

3. Prepare supporting programs.
   In creating this application, there are other supporting programs needed to make the creation process easier and run smoothly. Some of the supporting programs needed to create this application include Microsoft Office PowerPoint 2019, iSpring Suite 9, and Website 2 APK Builder, as seen in Figure 2.
   Figure 2 is a program for entering the application display icon, and several other display settings. After that, enter the HTML5 format that has been published and then click Generate APK to start the conversion process. Figure 2 below contains the display of Website 2 APK Builder, a program for entering the application name, application display icon, and several other display settings. After that, enter the HTML5 format that has been published and then click Generate APK to start the conversion process.

Figure 2: Website 2 APK Builder.

After the design stage, enter the script writing stage to be tested on students and a team of experts. These stages include writing and developing a manuscript for JLPT N4 *Bunpou* Japanese grammar teaching materials. The materials prepared to be included in this application include conversation texts, bunpou material development, and quizzes that are used as practice questions. In making quizzes, researchers used the iSpring Suite 9 Quiz Maker application. This can help in making the quiz display neater and more practical. All these scripts need to be prepared as application databases.

The development of material in this application consists of several types, including material in the form of conversation videos, conversation texts that explain the content of the video, and bunpou/grammar related to the video content. Apart from that, there are also quizzes to help train students to better understand the content of the material they have studied independently. This material was taken from several references, namely: (1) *Try Nihongo Noryoku Shiken* N4 (2013, Ask Publishing), (2) *Donna Toki Dou Tsukau, Nihongo Hyougenbun Bunkei Jiten* (2010, Alc. Press inc.), (3) *Nihongo Noryoku Shiken JLPT N4* (2012, 2018: Japan Foundation), and www.wkwkjapan.com.

The Structure of the Application

This application was developed as a learning medium that helps convey JLPT N4 grammar material. Asyhar (2012) states that the criteria for making learning media include clear and neat, clean, attractive, suitable for the target, relevant to the topic taught, under the learning objectives, practical, flexible, good quality, and size appropriate for the learning environment. Therefore, this application was created as much as possible to meet user needs as a learning medium for JLPT N4 *Bunpou*. This application is made as attractive as possible because

an interesting learning media will make students more enthusiastic about learning and understanding the material.

In creating learning media, a thorough concept and plan are needed so that the media produces benefits that can be felt by various groups. Not only does it make it easier for teachers to convey the material, but students will also understand the material presented by the teacher. Therefore, structured delivery can also support the delivery of learning material well to students. So, the design structure of this application was created to make it easier for researchers to develop applications that can be useful for their users. Figure 3 contains the design structure of the "Manabu Bunpou" application.
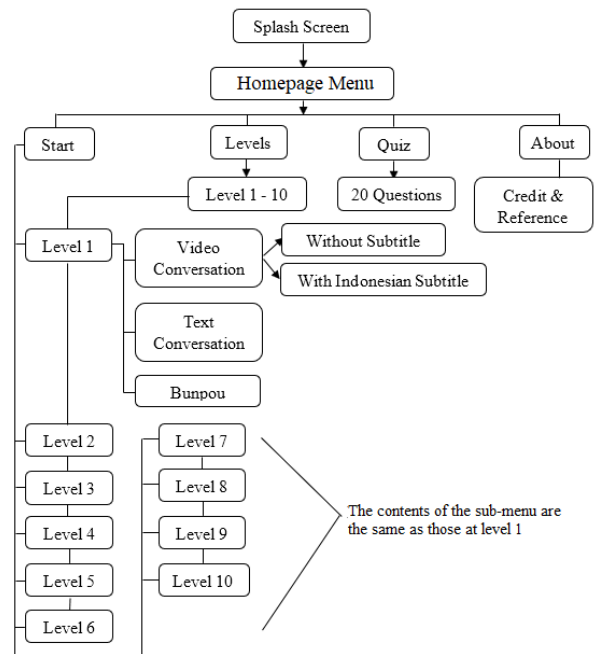

Figure 3: Structure of the Application Design.

The design structure of the "Manabu Bunpou" application consists of (1) Splash Screen and Homepage Menu, (2) Start Menu, (3) Video Conversation Menu, and (4) Text Conversation Menu.

"Manabu Bunpou" application has a Splash screen to welcome users before entering the home page. On the home page menu, there are several navigation buttons, namely start, levels, quiz, and about. Each of these menus will direct users to different pages.

Figure 4 is the appearance of the Splash Screen and Homepage Menu on the "Manabu Bunpou" application.

Figure 4: Splash Screen and Homepage Menu.

On the home page, there is a Splash screen to welcome users before entering the home page. On the home page menu, there are several navigation buttons, namely start, levels, quiz, and about. Each of these menus will direct users to different pages.

1. Start Menu

   in Figure 4 above, the start menu contains a selection of levels starting from levels 1 to 10. From each selected level, there is another button to select the material to be opened. Such as video material, text material, and *bunpou* material.

2. Video Conversation Menu

   To open video material, there are two options, namely the menu without subtitles and with Indonesian subtitles. Users can choose whether they want to see videos with Indonesian subtitles or not.

3. Text Conversation Menu

   After the video material, there is a text conversation menu. In this menu, there is text material that contains the script of the conversation text in the previous video. The text is written in Japanese which is also equipped with *furigana* or how to read the *kanji* so that users can understand the entire text in its entirety, as shown in Figure 5 and Figure 6.
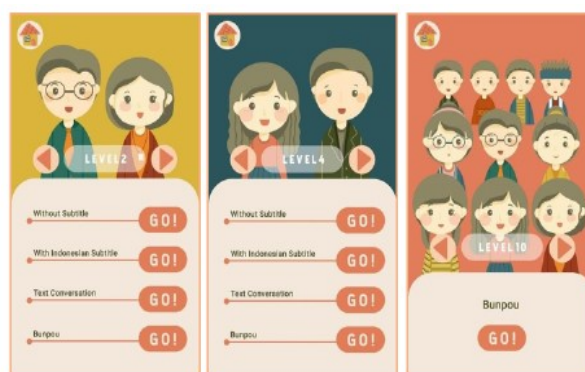

Figure 5: Start Menu display.

Figure 6: Conversation video display.

Figure 6 contains a video conversation that can heard, and users can read the text of the conversation according to the theme at each level. This conversation can practice reading and speaking Japanese according to the Japanese accent. The conversation text contains video material containing nine themes, each explaining a different topic.

The nine themes include:

1. *Okashi o tsukuri* tells the story of someone who gave a cake to his friend due to a cooking class.
2. *Kekkon shiki* tells about wedding culture in Japan.
3. *Watashi no machi Hanoi,* tells about tourist attractions and typical food in Hanoi.
4. *Haikingu no keikaku,* tells about plans to climb a mountain with friends.
5. *Ki no ue no ko neko* tells about the incident when he saved a cat at a tree.
6. *Daisukina Piano* tells about her hobby of playing the piano, which she has been involved in since childhood.
7. *Ryokan no Yoyaku* tells about booking an inn.
8. *Yuushou Intabyuu* tells about an interview between a reporter and a soccer athlete.

9. *Arubaito no mensetsu* tells about an interview conducted for a part-time job.

Figure 7 is the display of Bunpou: Japanese grammar, including the explanation. Finally, in the sub-menu for each level, there is an option to open the Bunpou material. This Bunpou material contains grammatical explanations or sentence patterns for 93 JLPT N4 Japanese sentence patterns previously found in videos and conversation texts. So apart from being able to understand the content of the video and text, users can also find out the use of several N4 grammars in the material.

Figure 7: Explanation of *Bunpou* (Japanese Grammar).

Figure 8 is the list of JLPT N4 Japanese sentence patterns, which are bunpou materials data. There is an explanation of the conditions for how to use the sentence patterns, then the structure for building sentences from these patterns, and example sentences along with translations in Indonesian.

No.	Bunkei	No.	Bunkei	No.	Bunkei
1	~てみる	29	受身形	57	~な
2	~そうだ	30	~でいます	58	~しろ
3	~んです	31	~がする	59	~って
4	~方	32	~ところだ	60	~てくれる
5	~ので	33	~でしょう？	61	~ようになる
6	~ことができる	34	~らしいです	62	~さ
7	~かどうか	35	~と言っていました	63	~よう
8	~て	36	~てもらいました	64	~ようと思っている
9	~ないで	37	~そうだ	65	~ために
10	~てしまう	38	~ば	66	~つもりです
11	~たら	39	~てしまう	67	使役形

Figure 8: List of JLPT N4 Japanese Sentence Patterns.

In the Levels menu, the user can quickly select to open the desired levels of material from 1 - 10.

In the quiz menu, there are questions related to bunpou JLPT N4. The questions are in the form of multiple choices so users only have to choose which answer is considered correct. Each result of the selected answer will be notified whether the answer is correct or incorrect. Apart from that, a brief explanation of the answer is also displayed. Then, after all the questions have been answered successfully, at the end of the quiz the score from the results of the quiz will be displayed. Users can also review the questions that have been answered. The 'About Menu' displays several things related to the application. These include books and web sources which are used as references and identities for application makers and advisors.

Figure 9: Quiz display in the application.

The Evaluation and Students' Feedback of "Manabu Bunpou" Application

The main respondents in this research were 15 students of the Japanese Language Education study program at the Indonesian Education University. Trials are carried out to determine student responses to the application being developed. These responses were collected by filling out a questionnaire, which consisted of filling in scores for statements and providing comments and suggestions. Following the statement of Wahid and Cerya (2022) and Arifin, Prajayanti, Hasby, Taufik, and Anggarini (2023), good media is media that is easily accessible to students and teachers anywhere and at any time. Such as Android or smartphone technology which is used as a learning media which can provide efficient application of learning material and effective impact which can be downloaded by students related to the material needed so that it can

be repeated at any time and can be studied independently (Jengathe & Rojatkar, 2015). The following are the results of the questionnaire from students. Some of the suggestions and comments received regarding this application include, in terms of appearance, this application is very attractive with cute appearance and colorful images so that users do not feel bored. One of the suggestions regarding the display aspect is the 'back' navigation button which can be further improved.

Furthermore, in terms of material, the comments received include that this application is good and quite helpful for understanding sentence patterns. Apart from that, the delivery of the material is very good. Then, with quizzes, students can practice their Japanese skills. Suggestions regarding the material include increasing the level of material and practice questions, as well as delivering the material more communicatively.

Then finally, comments in terms of benefits include saying that this application is very useful. This application is also quite comfortable to use for studying, not confusing, easy to access, and easy to understand the material. Apart from comments and suggestions, respondents also provided assessments in the form of scores. The results of the assessment in the form of scores can be seen in Table 2.

Table 2: Student Questionnaire Results.

No	Statement	Percentage	Answer
1	How is the *Manabunpou* application?	94%	Easy to access
2	Is the *Manabunpou* application interesting?	64% 26%	Very Interesting Interesting
3	Is the *Manabunpou* application easy to learn?	76% 24%	Very Easy Easy
4	How is the *Bunpou* JLPT N4 material presented?	88%	Increased understanding of *Bunpou* N4
5	The application can be used for independent learning	90%	Yes, it can be used to learn independently

The results of the questionnaire given to students in Table 2 showed that 94.1% of them generally

stated that the use of the "Manabu Bunpou" application was easy to access when used for independent learning. Because students can directly follow the learning instructions in the Manabunpou application, the composition of the material is very interesting starting with conversation videos that can be listened to and they can also choose conversation texts, then the Bunpou material is arranged according to levels starting from level 1 to 10. 76.5% of students stated that this application was easy to learn, and the explanation of the material was easy to understand. In the Bunpou material, each sentence pattern contains an explanation and examples of usage in Japanese sentences. Furthermore, 64.7% of students stated that this application was attractive in pictures and colors which made it easier for students to learn. Then, in the end, there is a quiz on Bunpou JLPT N4 questions to practice accuracy in answering questions, and at the end, a score is obtained. Quizzes can be done repeatedly. Quizzes can be taken repeatedly by application users, obtaining an average quiz score of 88.8%. So, it can be concluded that this application is very suitable to use as a learning media for Bunpou JLPT N4 as in Figure 10.
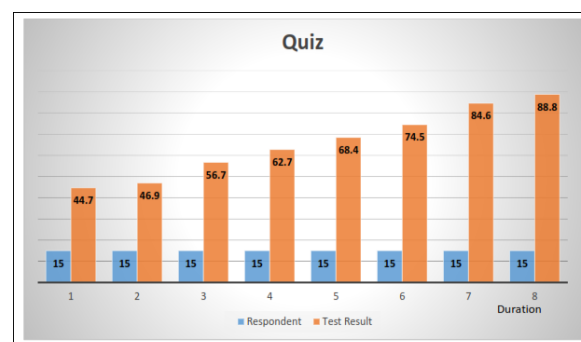

Figure 10: Quiz Result.

Table 3 are results of the response questionnaire from two IT experts and one Japanese language education expert who provided validation for the use of the "Manabu Bunpou" JLPT N4 application.

From the results of Table 3 with validation responses, the experts said that it was suitable to be used as teaching material for JLPT N4 preparation and could be used as a medium for independent learning. Then another response is to create applications for material other than grammar (*bunpou*), and the delivery of example sentences and grammatical explanations in this application can be made even better, and the practice questions can be increased to make them more varied. Apart from

that, the application is very good and the display is very attractive.

Table 3: Expert Team Questionnaire Results.

No	Statement	Percentage	Answer
1	The "Manabu Bunpou" application is easy to read and has clear Japanese letters	82%	Yes, easy to access and has clear Japanese letters
2	The design structure is easy to use and understand	90%	The design flow is systematic and very interesting
2	Images and videos are proper	93%	Images and videos are very good
3	The structure of the JLPT N4 *bunpou* material presentation is easy to understand	88%	The JLPT N4 *bunpou* material is complete with explanations and usage in Japanese sentence examples
4	Using this application is effective for studying *bunpou* JLPT N4	82%	Students will enjoy learning bunpou JLPT N4
5	This application is effectively used as teaching material or independent learning media	89%	The application is very suitable to be used as a teaching media for independent learning

From the explanation of the evaluation results from the students and expert team, there is conformity with research conducted by Arifin, Prajayanti, Hasby, Taufik, and Anggarini (2023), Haristiani, Danuwijaya, Rifai, and Sarila (2019), Arifin, Prajayanti, Hasby, Taufik, and Anggarini (2019), Rifai, Haristiani, and Risda (2020), and Haristiani and Rifai (2021) that learning media

through multimedia, social media, and applications in the smartphone can attract user attention and create positive user experiences. Applications that are easy to use, consistently structured material design, appropriate color schemes, visually appealing images and audio, clear typography, and a visually consistent layout are considered to create a pleasant user interface. The color scheme is carefully chosen to evoke a positive and engaging atmosphere. Furthermore, the "Manabu Bunpou" application can be used at any time, providing unlimited time for students to be able to study independently and understand the Bunpou JLPT N4 material better.

CONCLUSION

The use of smartphones has now become a primary need that cannot be separated from human life. In the education field, smartphones can be used as a learning medium that can help students better understand the material being studied because their use is more practical and easier to use. The "Manabu Bunpou" application is an Android-based smartphone application developed as a JLPT N4 grammar/*Bunpou* learning media. For recommendations, researchers hoped that teachers and students could develop innovations in creating practice applications for JLPT questions in particular, and other Japanese language skills in general. Apart from that, it can also be accessed anywhere and at any time via smartphone, so it can likely be applied to help with independent learning activities. We hope that with the development of this Japanese language learning application via smartphone, not only Bunpo materials can be accessed easily and quickly, but other Japanese language teaching materials will make it easier for users to learn Japanese independently.

REFERENCES

Adoobie, N. (2015). ADDIE model. *American International Journal of Contemporary Research, 5*(6), 68-72.

Ali, M. (2010). *Metodologi dan Aplikasi Riset Pendidikan [Educational Research Methodology and Applications]*. Bandung: Pustaka Cendekia Utama.

Arifin, A., Prajayanti, E., Hasby, M., Taufik, M., & Anggarini, D. T. (2023). The Unex Application as An English Interactive Learning Media: A Feasibility Study. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan*

Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran, 9(2), 592-604.

Arikunto, S. (2006). *Prosedur Penelitian Suatu Pendekatan Praktik* [*Research Procedures A Practical Approach*]. Jakarta: Rineka Cipta.

Asyhar, R. (2012). *Kreatif Mengembangkan Media Pembelajaran*. Jakarta: Referensi

Bao, L., Xing, Z., Xia, X., & Lo, D. (2019). VT-Revolution: Interactive Programming Video Tutorial Authoring and Watching System. *IEEE Transactions on Software Engineering, 45*(8), 823–838. https://doi.org/10.1109/TSE.2018.2802916

Dewanty, V. L., Haristiani, N., Sadewo, L., & Tasman, A. Q. (2024). The Use of Technology and Media in Japanese Language Learning: A Bibliometric Analysis. *Journal of Advanced Research in Applied Sciences and Engineering Technology, 38*(1), 135-155.

Everson, M. E. (2011). Best practices in teaching logographic and non-Roman writing systems to L2 learners. *Annual Review of Applied Linguistics, 31*, 249-274.

Jengathe, G., & V. Rojatkar, D. (2015). Use of Android in Education System. *International Journal of Electrical and Electronics Research, 3*(4), 133–137.

Firmansyah, R. O., Hamdani, R. A., & Kuswardhana, D. (2020). The use of smartphone on learning activities: Systematic review. In *IOP Conference Series: Materials Science and Engineering* (Vol. 850, No. 1, p. 012006). IOP Publishing.

Haristiani, N., Danuwijaya, A. A., Rifai, M. M., & Sarila, H. (2019). Gengobot: A chatbot-based grammar application on mobile instant messaging as language learning medium. *Journal of Engineering Science and Technology, 14*(6), 3158-3173.

Haristiani, N., & Rifai, M. M. (2021). Chatbot-based application development and implementation as an autonomous language learning medium. *Indonesian Journal of Science and Technology, 6*(3), 561-576.

Herniwati, H., & Fatmariana, S. (2019, March). Development and implementation of mobile assisted language learning media to enhance Japanese grammar. In *Second Conference on Language, Literature, Education, and Culture (ICOLLITE 2018)* (pp. 300-304). Atlantis Press.

Hess, A. K., & Greer, K. (2016). Designing for engagement: Using the ADDIE model to integrate high-impact practice into an online information literacy course. *Communications in Information Literacy, 10*(2), 264-282.

Japan Foundation. (2018). *Survey on Japanese Language Education Abroad 2018*. Retrieved from https://www.jpf.go.jp/e/project/japanese/survey/result/survey18.html

Japan Foundation. (2021). *Survey on Japanese Language Education Abroad 2021*. Retrieved from https://www.jpf.go.jp/e/project/japanese/survey/result/survey21.html

Japan Foundation (2024). *Statistics Applicants Japanese Language Proficiency Test 2023*. Retrieved from https://www.jlpt.jp/e/statistics/archive.html

Judiasri, M. D. (2015). Drill Bunpo Berbasis Multimedia untuk Meningkatkan Kompetensi Bahasa Jepang [Multimedia-Based Drill Bunpo to Improve Japanese Language Competency]. *Barista, 2*(1), 70-79. Retrieved from https://stp-bandung.ac.id/ejournal/index.php/v01/article/view/37/33

Kirkorian, H. L. (2018). When and How Do Interactive Digital Media Help Children Connect What They See On and Off the Screen? *Child Development Perspectives, 12*(3), 210– 214. https://doi.org/10.1111/cdep.12290

Kissi, L., & Dreesmann, D. (2018). Plant visibility through mobile learning? Implementation and evaluation of an interactive Flower Hunt in a botanic garden. *Journal of Biological Education, 52*(4), 344–363. https://doi.org/10.1080/00219266.2017.1385506

Mayfield, M. (2011). Creating training and development programs: Using the ADDIE method. *Development and Learning in Organizations: An International Journal, 25*(3), 19-22.

Mitsui, K., (2014). Shidoushayou dejitaru kyoukasho ni okeru rifurekushon kinou no kentou [Examination of the reflection function in digital textbooks for instructors]. In *Nihon dejitaru kyoukasho gakkai nenji taikai happyou genkoushuu Nihon dejitaru kyoukasho gakkai 2014nendo nenji taikai* (pp. 37-38). Nihon dejitaru kyoukasho gakkai.

Munir, M. (2012). *Multimedia dan Konsep Aplikasi Dalam Pendidikan* [*Multimedia and Application Concepts in Education*]. Bandung: Alfabeta.

Nahak, Y. M. (2022). The Effect of Online Learning (WhatsApp) And Students Independent on the Learning Outcome of Sociology at SMAN 1 Kupang. *SocioEdu: Sociological Education, 3*(1), 6–11. https://doi.org/10.59098/SOCIOEDU.V3I1.646

Peebles, A., Bonus, J. A., & Mares, M. L. (2018). Questions + answers + agency: Interactive touchscreens and Children's learning from a socio-emotional TV story. *Computers in Human Behavior, 85*, 339–348. https://doi.org/10.1016/j.chb.2018.03.039

Quintos, S. B. (2021). Difficulties in learning Japanese as a foreign language: The Case of Filipino learners. *BU R&D J, 24*, 31-38.

Racoma, B. (2018). *Learning a new language is difficult but it can be done*. Retrieved from https://www.daytranslations.com/blog/why-language-learning-is-difficult/

Rachmadtullah, R., Zulela, M. S., & Sumantri, M. S. (2018). Development of computer- based interactive multimedia: Study on learning in elementary education. *International Journal of Engineering and Technology (UAE), 7*(4), 2035–2038. https://doi.org/10.14419/ijet.v7i4.16384

Rifai, M. M., Haristiani, N., & Risda, D. (2020). Gengobot: Chatbot application to enhance N4 Level Students' Japanese grammar ability. *JAPANEDU: Jurnal Pendidikan dan Pengajaran Bahasa Jepang, 5*(2), 134-141.

Ritonga, S. A., Ritonga, S., Tangse, U. H. M., Putri, D., Ritonga, A., & Ritonga, W. A. (2023). The Effect of

ClassPoint Learning Media as Interactive and Fun Learning. International *Journal of Humanities Education and Social Sciences, 2*(6).

Rohaeti, E. E., Bernard, M., & Primandhika, R. B. (2019). Developing interactive learning media for school level mathematics through open-ended approach aided by visual basic application for excel. *Journal on Mathematics Education, 10*(1), 59–68. https://doi.org/10.22342/jme.10.1.5391.59-68

Sanchez-Sepulveda, M. V., Fonseca, D., García-Holgado, A., García-Peñalvo, F. J., Franquesa, J., Redondo, E., & Moreira, F. (2020). Evaluation of an interactive educational system in urban knowledge acquisition and representation based on students' profiles. *Expert Systems, 37*(5), 1–17. https://doi.org/10.1111/exsy.12570

Sastranegara, J. P. (2017). Peranan tes kuis dalam meningkatkan pembelajaran memahami tata bahasa Jepang tingkat dasar [The role of quiz tests in improving learning to understand basic Japanese grammar]. *Jurnal Pendidikan Bahasa dan Sastra, 17*(1), 127-136. DOI: 10.17509/bs_jpbsp.v17i1.6965

Segaran, K., Ali, A. Z. M., & Hoe, T. W. (2014). Usability and user satisfaction of 3D talking-head mobile assisted language learning (MALL) app for non-native speakers. *Procedia-Social and Behavioral Sciences, 131*, 4-10.

Sugiyono, S. (2015). *Metode Penelitian Pendidikan (Pendekatan Kuantitatif, Kualitatif. dan R&D)* [*Educational Research Methods (Quantitative, Qualitative and R&D Approaches)*]. Bandung: Alfabeta.

Susilana, R., & Riyana, C. (2009). *Media Pembelajaran: Hakikat, Pengembangan, Pemanfaatan, dan Penilaian* [*Learning Media: Substance, Development, Utilization and Assessment*]. Bandung: Wacana Prima.

Tanaka, N. (2014). Tsumazuki kara kangaeru jugyou sekkei - Tsumazuki kara kangaeru kyougu kaihatsu no jissen [Instructional design out of regard for students' setback]. *Nara Kyouiku Daigaku Kyoushoku Daigakuin Ken Kiwamu Kiyou Gakkou Kyouiku Jissen Kenkyuu, 6*, 11-20.

Wahid, R. N., & Cerya, E. (2022). Development of Android-Based Interactive Media Learning Economics Capital Market Materials. *Economic Education Analysis Journal, 11*(1), 50–64. https://doi.org/10.15294/eeaj.v11i1.53713