

Feasibility of The Development of E-Yonkoma as a Japanese Learning Media to Improve Critical Thinking Ability of Students of SMA Negeri 7 Malang

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Abstract. This study aims to produce an output, E-Yonkoma as a medium for learning Japanese that supports the improvement of critical thinking skills. The method applied in this research is R&D with a model that was developed by Thiagarajan, 4D. From the needs analysis, it is concluded that students need Japanese language learning media that are able to improve critical thinking skills to face the dynamics of the 21st century. This development research produces digital learning media products that are practical and easily accessible to all students based on E-Yonkoma with a development process that is appropriate and has "eligible" quality to be used, supported by validation results by a material expert who stated that the E-Yonkoma product was in the "very feasible" category with a percentage of 88.97, and by media experts it was stated that the E-Yonkoma product was in the "very feasible" category with a percentage of 89.2%.

Keywords: Feasibility of development, E-Yonkoma, Japanese language learning media, critical thinking skills

1 Introduction

The uniqueness of Japanese language can be seen from their linguistic aspects, with certain characteristic that can be observed from the words being used, vocabulary, pronunciation, grammar, and the variety of languages. When viewed from the words that being used to write Japanese language, Japanese language has very complex writing system [1]. with its complexity, in Indonesia, according to the survey report by Japan Foundation in 2018, found out that amount of Japanese language learner reaching 709.479 learner, second after China. A lot of Japanese language learner in Indonesia, according to Sudjianto [1] caused by language education program that's been widening, that causing number of students, teachers, or researcher in Japanese language keep increasing. However, in term of number, number of learner that registered in 2018 is decreasing compared in 2015, caused by revisied curriculum that applied according to Permendikbud No 36 2018, related to choosing subjects in cross-interest at High School.

The introduction of freedom learning curriculum begin by the dynamics of curriculum in 2022, caused new challenges for Japanese language education field. In order of restoration education in 2022-2024, Minister of Education Culture Research and Technology issue policy that school has not been ready to use freedom learning curriculum, still able to use curriculum 2013 as base of management learning. Likewise with emergency curriculum which modification from curriculum 2013, still able to be used in those certain education instance. Like been said by Minister of Education Culture Research and Technology, Nadiem Makarim, reported by online press Antaranews.com, freedom learning curriculum giving freedom to the learners to choose subjects that suitable to their interest and aspiration in last two years of High School. In other words, there will be no more cross-interest, and Japanese language as one of subject in cross-interest at High School, and have to face that challenge with maintaining and increasing students interest and ability in Japanese language.

According to Tafonao [2], in order to maintain and increasing students interest in certain subject, learning media could be option with complex role, media will able to increase student motivation in learning, encourage to active in speaking and writing, and stimulate their imagination. In academic world, learning media always have crucial position. It's because learning media itself is one of helping tools for teachers to deliver learning material, increasing students creativity and their attention on lesson. So, existence of media able to help teachers in doing creative and efficient lesson. With learning media, condition which encourage students in order to complete their competence in lesson also able to be created.

With the development of technology, era, and condition which always changing in world of education as the result of disruption era, encourage modernization efforts in the use of technology in the education system. Condition of Covid-19 spread in Indonesia since 2019-2021 has causing drastic change in process of teaching and learning, which demand usage of technology to the fullest. Circumstances that depend on the technology is causing change in the way of acquisition of material in the lesson they received. Besides the intensity usage of technology, according to Rawung et al [3], in era of the industrial revolution 4.0, 21 century skills which is inquire, creative thinking, critical thinking, decision making and problem solving must be owned by every person, in order to able to filter the information they received, interpret the information and creating new knowledge. Start from applied freedom learning curriculum in schools of mover, demand lesson which facilitate students in fulfillment of 21st century skills. Minister of Education Culture Research and Technology [4] formulated that paradigm 21st century lesson is emphasizing ability of learners in searching out in various source, formulating the problem, analytical thinking, and cooperation, as well as collaboration in problem solving. According to Rawung et al [3] various skills that demanded by 21st century is important to be concerned in process of running curriculum, to be included in the curriculum and taught to learners. One of the 21st century skills that should be prioritized in learning is critical thinking. Based on what Ahmatika said [15] critical thinking is thinking rationally, reflectively and responsibly. Critical thinking skills can also be interpreted as an individual's ability to translate their own thinking patterns from the responses they receive [16]. Critical thinking skills can be known from a person's ability to provide

responsible responses according to rationality and reality. This is in line with the research findings of Nejad et. al. [5] that students who benefit from a very high level of critical thinking ability are better in their performance than those who do not have a high level. The findings of this study suggest that students can prosper in their foreign language learning ability if they learn to think critically and if they are aware of the strategies.

As an effort to facilitate students in learning Japanese with all the changes that occur and the target of realizing the fulfillment of 21st century skills in the learning process, renewal is needed by utilizing technology, for example in the form of learning media. Many learning media have been developed, especially visual media that can complement students' essential experiences when reading, discussing, practicing, and so on. This is in line with Adittia's research [6] which indicates that visual media can have a more significant impact on learning. One of the rapidly growing visual media is comics, which can be published in print and digital form [7]. At first, comics were known as light illustrated stories for entertaining reading. However, comics can be utilized as media in learning activities on the basis of having advantages as illustrated stories; their effectiveness in learning is also beneficial [8]. In addition, learning that uses comics as media will have a positive impact on students' critical thinking skills. This is shown through previous research conducted by Andayani et. al. [9] that the quality of comic products as learning media for critical thinking skills is categorized as 'Very Good' in terms of content, material and media feasibility components by experts and practitioners. Then, the results of research conducted by Indriani and Candra [10] showed that critical thinking skills relatively increased after the application of comic-based E-LKPD in learning activities.

So, as a solution to the need for Japanese language learning media that supports efforts to improve 21st century skills, one of which is critical thinking, in this study entitled "Feasibility of Developing E-Yonkoma as Japanese Learning Media to Improve Critical Thinking Skills of Students of SMA Negeri 7 Malang", the media that will be used as an alternative to Japanese language teaching is four-panel comic media or electronic-based yonkoma. Researchers chose to present learning media using comics but limited to four panels in order to make it easier for students to understand the sequence of story content, so that the critical understanding targeted to students can be received after reading the four panels, and realize effectiveness in the learning process. Four-panel comics (yonkoma) can be shown to stimulate students' competence in language learning and increase students' attention and positive attitude in the learning process (Kılıçkaya & Krajka, 2012; Sharma, 2020; Syafii, 2019) [11]. Four-panel comics according to Cimermanová (2015) and Da Silva, Santos, & Bispo (2017) [11] are helpful in language learning, especially vocabulary and expression, grammar, and composition. It can also be used to develop students' visual literacy. Therefore, before conducting the research, a needs analysis was first carried out by distributing questionnaires and interviews to students in three X classes with Japanese specializations at SMA Negeri 7 Malang, then interviews were conducted with Japanese language teaching teachers. Based on the results of interviews with Japanese language teachers at SMA Negeri 7 Malang, it was found, 1) Students have smartphone facilities; 2) Students are allowed to use smartphones in

the learning process, but with supervision; 3) Wi-Fi facilities provided by the school function quite well; 4) The existence of learning media increases student activeness and participation in the learning process; 5) Learning media that have been applied during the online to offline transition are videos, audio, animated videos from the Japanese language learning web or made by themselves; 6) Digital-based learning media have been applied during the Japanese language learning process, especially for project assignments; 7) Students' response to digital learning media was initially difficult, but students can adapt after going through habituation in 1 meeting and being given a video tutorial; 8) The obstacles in implementing digital learning media are inadequate networks and devices, but there are many alternatives to this obstacle, and students are still willing to try, besides that a small number of students have difficulty understanding the instructions in the learning media; 9) The questionnaire results show that students find it easier to understand Japanese language materials by using learning media such as pictures, videos, etc.; 10) Students are more enthusiastic, motivated, and understand the concept of Japanese language materials with the existence of learning media such as pictures, videos, etc.; 11) Students have become accustomed to the online learning system, so the availability of digital learning media is very necessary. 12) Students are familiar with the online test/exam/repetition system, so the availability of digital learning media is needed; 13) Students need learning media that can help me improve my ability to think and act critically, to face 21st century changes; 14) Students need learning media that can help me improve my ability to think and act creatively, to face 21st century changes; 15) Students need learning media that can help me improve my ability to think and act productively, to deal with 21st century changes; 16) Students need learning media that can help me improve my ability to think and act independently, to face 21st century changes; 17) Students need learning media that can help me improve my ability to think and act collaboratively, to deal with 21st century changes; 18) Students need learning media that can help me improve my ability to think and act communicatively, to deal with 21st century changes; 19) Students are interested in visual objects (images, videos, etc.) that are relatively unique, and rarely found, which are used as learning media; 20) Students agree that learning media with visual objects that are packaged electronically are practical learning media and support the times; 21) Students agree that comics can be one of the effective Japanese learning media to improve critical thinking skills; 22) Students agree that comic strip learning media can provide an interesting learning atmosphere; 23) Students agree that comic strip learning media can help get an overview and understand the material presented; 24) Students agree that comic strip learning media can trigger students to raise critical questions related to the material presented through the comic. Therefore, this research carries the theme of developing digital learning media in the Japanese language learning process that supports 21st century skills, and, researchers will test the feasibility of developing E-Yonkoma media as a Japanese language learning media to improve the critical thinking skills of SMA Negeri 7 Malang students, by also considering previous research related to the application of digital media four-panel comics that have never been specifically designed for Japanese language learning.

2 Method

Research and Development (R & D) development research using the 4D development model proposed by Thiagarajan, et al. [12] was applied to determine the feasibility of developing e-yonkoma as a learning medium to improve the critical thinking skills of high school students in Malang. The details of the 4D stage [13] begin with defining (define), which at this stage will carry out needs analysis activities, which in this study were realized through questionnaires and interviews, then the next stage is designing (design) which contains activities to make product designs that have been determined based on the results of the needs analysis. In the design stage, the first step is to determine the media that will be used for e-yonkoma; second, researchers designed e-yonkoma by starting to draw character sketches and character background stories that will animate the flow of e-yonkoma, and facilitate the delivery of material in accordance with the background of the story; third, researchers made storylines that were in accordance with the material and paid attention to the applicable learning outcomes; fourth, made an overall learning device plan starting from structured learning activities using e-yonkoma. Then, at the development stage, researchers will make the design into a product, namely e-yonkoma, and test the validity of e-yonkoma products by material experts and media experts repeatedly until the product is produced in accordance with the specifications set. The last stage, namely dissemination, contains activities to disseminate products that have been tested and then utilized by others. Due to time and cost constraints, researchers conducted this research up to the development stage. The subjects consisted of 93 students from class X or the equivalent of 3 classes taking Japanese language subjects. This project is an introduction to various greeting expressions in Japanese visualized with e-yonkoma comics, aiming to improve students' critical thinking skills through Japanese language learning.

3 Results and Discussions

This section will describe the research results of the learning media development process. In the process of developing e-yonkoma learning media, there are steps that are realized to support the successful implementation of this media development. These steps are analysis of student needs and characteristics, formulation of objectives, formulation of material items, formulation of success measurement tools, product manufacturing, and trials and revisions. The following is a description of each step required in the e-yonkoma learning media development process.

3.1 Analysis of Student Needs and Characteristics

Analysis of Student Needs and Characteristics is the first stage in the media development process. Before the development activities are carried out, a needs analysis is carried out to find out the needs of class X students of SMA Negeri 7 Malang in learning Japanese, especially regarding supporting learning media. What is needed by students is sought using a needs analysis questionnaire research instrument to X grade students of SMA Negeri 7

Malang. In this study, the respondents were represented by 93 students of class X SMA Negeri 7 Malang, or equivalent to three classes X who received Japanese language subjects. In addition, as a support, interviews were also conducted with Japanese language teachers at SMA Negeri 7 Malang as respondents, to find out the needs of SMA Negeri 7 Malang students for digital-based Japanese language learning media. After distributing needs analysis questionnaires to students and interviews to Japanese language teachers at SMA Negeri 7 Malang, the results of questionnaires and interviews were analyzed so as to obtain data that proved the level of student needs for digital-based comic strip learning media as a support in Japanese language learning activities in Japanese language subjects in class X SMA.

The student needs analysis questionnaire consists of aspects and indicators of student needs for learning media, especially digital-based learning media that support 21st century skills, in the form of e-yonkoma. The aspects and indicators are divided into 16 statement points related to learning media and 21st century skills, then learning activities that have been carried out by students. Respondents of the needs analysis questionnaire consisted of 93 students of class X SMA Negeri 7 Malang who took Japanese language subjects. The aspects and indicators of the student needs analysis questionnaire are listed in Table 1.

Aspects	Indicators	Item(s)						Aspect Percentage	Criteria
		1	2						
Impact of learning media use	Learner learning success	1	2					86%	Very strong
Online learning	Using available digital platforms	3	4					77%	Strong
Facing new challenges in 21 st century education	Using new paradigms to face 21 st century challenges	5	6	7	8	9	10	84%	Very strong
21 st century skills	Critical thinking and action skills								
Improving learning quality	E-learning	11						85%	Very strong

Learning media development	A new learning model	12						83%	Very strong
Virtual-based learning media is effective in the language learning process	Comics	13						80%	Strong
	Comic strip	14	15	16				83%	Very strong

Table 1. Student Needs Analysis of E-Yonkoma Learning Media

Based on the results of the questionnaire analysis of student needs for learning media that presents digital-based visuals in the form of e-yonkoma to improve critical thinking skills, it can be concluded that students need learning media such as images, videos, etc., which support the success of student learning. Then, with students being accustomed to online learning, digital-based learning media is also needed. Students are also known to need a learning media that uses a new paradigm to face the challenges of the 21st century, and also a media that supports the improvement of critical thinking skills, seen from the 'Very Strong' criteria obtained by the aspects and indicators of the needs analysis. In addition, from the results of Anwas's research [14] to improve the quality of learning, learning media needs to be equipped with visual objects that are relatively unique, and rarely found, as well as abstract objects so that the learning process is more conducive, and from the results of the needs analysis, students need a digital learning media, which is relatively unique and presents visual objects. From the results of the needs analysis, it is also known that students need learning media with visual objects that are packaged electronically, practical and support the times as a form of developing a new learning model. In aspects and indicators related to comics and comic strips, it was found that students need visual-based learning media such as comics and comic strips to improve critical thinking skills. Apart from the results of the needs analysis questionnaire, there are also supporting data in the form of interviews with Japanese language teachers at SMA Negeri 7 Malang, with the interview results as in Table 2.

No	Questions	Answers
1.	Do the majority of SMA Negeri 7	Yes, you could say that almost 99% use and use in

	Malang students use smartphones?	learning activities.
2.	Are SMA Negeri 7 Malang students allowed to use smartphones in the learning process?	Yes, with rules. If it is not for learning needs, it cannot be used. So, there is an agreement between teachers and students. According to supervision.
3.	Is the Wi-Fi facility provided by the school functioning properly?	Sometimes it works, sometimes it doesn't. But the problem is in the provider or in the provider, it causes Wi-Fi to often have problems.
4.	Does the existence of learning media increase student activeness and participation in the learning process?	Definitely yes. If we don't use media, the learning will be one-way only between the teacher and the students. But if we use media, teachers can invite students to actively observe, actively find out, can explore students' curiosity by providing interesting learning media.
5.	What learning media have you implemented during this online to offline transition?	More often than not, we use videos, either animated videos made by ourselves using plotagon or using videos provided by the Japanese language learning web. Then there are also self-made modules.
6.	Have you implemented digital-based learning media during the Japanese language learning process?	Almost during the pandemic, Japanese language learning has always implemented digital learning. Students work digitally, and are collected digitally. But during the pre-transition, usually assignments in the form of projects will be done digitally. But if the assignment is in class, students prefer to print the module. Digital media used for project assignments are canva, instagram.
7.	How do students respond to the digital learning media that you have implemented?	Initially it was difficult, because they had to learn how to use it. But when students start learning it, students feel comfortable with the digital learning media used. Any media requires habituation. Familiarization takes 1 meeting, supported by video tutorials to help students. Students will also help each other in the process of implementing this digital learning media.
8.	Are there any obstacles in the application of digital learning media during the Japanese language learning process?	The first obstacle is the network and device. Because if the device is too old, it cannot support new applications needed as learning media. For the solution of this obstacle, students help each other by lending devices to their friends, or

students can first do it on paper, and when they go home, they will go to the internet cafe to do the task. Students have the willingness to learn to use digital learning media. Motivating students to use digital learning media is important to maintain students' interest in using the media. In addition, there are also obstacles in the form of students not understanding 100% with the learning concept, and students do not want to ask questions. However, the number is very small. For students who do not understand this, it will be explained again.

Table 2. Pre-research interviews

Based on the description of the interview results as supporting data for analyzing students' needs for e-yonkoma as a Japanese language learning media to improve critical thinking skills, it can be concluded that in terms of the application of digital learning media, students are ready to accept new digital learning media with smartphones, internet, devices, and previous experience in using digital-based media. SMA Negeri 7 Malang students are also the type of students who are able to adapt quickly when using new learning media. In addition, it can be concluded that learning media is needed so that learning can be two-way, and students have the opportunity to be active in Japanese learning activities. If drawn an overall conclusion, based on the results of the needs analysis questionnaire and pre-research interviews, the learning media needed by students is learning media that is easy to use on any device, especially smartphones, with a tutorial for using the media. In addition, motivation from teachers is also needed so that students have the willingness to operate digital learning media, so that the learning process goes according to plan.

From the results of the needs analysis that has been carried out, a digital learning media is needed to facilitate student and teacher interaction in Japanese language learning class X SMA. A learning media with a new paradigm to face the challenges of the 21st century, so that the learning media can support students to improve critical thinking skills. Then, learning media with a new model is also needed by students, with comics or comic strips as a choice of learning media forms which will then be transformed into digital form, containing learning materials that are easy to understand and support the effectiveness of the learning process. This learning media is a learning media that presents visuals, new scenes for students and interactive, so as not to make students bored when carrying out Japanese language learning.

3.2 Specification of Objectives

Thiagarajan, et al [12] stated that needs analysis aims to find the main skills that will be studied by researchers. Prior to the discovery of learning objectives, a task analysis was conducted to ensure a thorough review of the tasks in the learning materials to be developed

through e-yonkoma learning media, after the Learning Outcomes (CP) were analyzed. This task determination is intended so that the learning media can adjust the assignment based on the skills to be achieved from the results of field observations, needs questionnaire analysis and interviews.

After obtaining the sub-skills that will be used as objectives to be achieved after the use of e-yonkoma learning media, concept analysis is then carried out to find fundamental concepts that will be taught and delivered through learning media, and describe them into concept maps, and make the concepts detailed into critical and irrelevant things. Concept analysis is a crucial step to suffice the concept building of the materials used as a means of achieving learning outcomes (CP). At this stage, it will analyze the basic competencies (KD) and learning outcomes (CP) and student learning resources, namely collecting and identifying which sources students use to learn, so that what is conveyed through learning media will adjust.

3.3 Outlining the Elements of the Material

After the objectives based on task and concept analysis have been formulated, the next step is to formulate in detail the material presented to students. The formulation is carried out by identifying the main materials that will be taught to students. The results of parsing the elements of the material can be seen in the following table:

- a. Vocabulary in Chapter 4 Greetings

Table 3. Vocabulary of Chapter 4 Greetings

No.	Types of Japanese Greetings	Japanese Greetings	Meaning
1.	Meeting greetings	Ohayou (gozaimasu)	Good morning
		Konnichiwa	Good afternoon/Hello
		Konbanwa	Good evening
2.	Asking for news and opening a conversation	Ohisashiburi desune	Long time no see
		Ogenki desuka	How are you?
		Kyou wa ii tenki desune	The weather is nice today isn't?
		Chotto kumori desune	It's a bit cloudy isn't? (weather)

		Sayounara	Goodbye
3.	Farewell greetings	Dewa mata/ja mata	See you later
		Oyasuminasai	Good night
		Ittekimasu	I'm leaving
4.	Other everyday expressions	Arigatou (gozaimasu)	Thank you
		Sumimasen	Sorry/excuse me

Table 3 is a grouping of materials in Chapter 4 Greetings. These materials are obtained from teaching materials used by students in Japanese language learning, which will then be visualized to students through the developed e-yonkoma learning media. The organization of these material elements is done so that students can achieve the learning objectives that have been determined previously.

3.4 Formulation of Evaluation Instruments

Evaluation is the main element of learning activities, in a series of learning implementation in general, in language learning activities. In language learning there are also certain goals that have been set in the CP (Learning Outcomes), so that the activities are designed in such a way as to achieve these goals. Then, a series of evaluations of learning outcomes are carried out to obtain concrete certainty regarding the achievement of these learning objectives.

Evaluation is an effort to make decisions about the level of student learning outcomes in accordance with learning objectives, which must exist in every learning activity so that learning activities can be carried out. Related to e-yonkoma learning media that is being developed as a Japanese language learning media, it is necessary to arrange a success measurement instrument that is in accordance with the development of students' abilities to determine the level of success of these learning activities.

3.5 Product Development

Product Development

The e-yonkoma learning media development activities are divided into two stages, namely:

a. Preparation stage

In the preparation stage, the activities carried out are formulating the concept of learning media that will be realized in the draft format at the e-yonkoma learning media design stage. The activities carried out are compiling the learning flow that will later use e-yonkoma learning media and the completeness of e-yonkoma learning media needs. In the preparation stage, the flow of activities carried out is as follows:

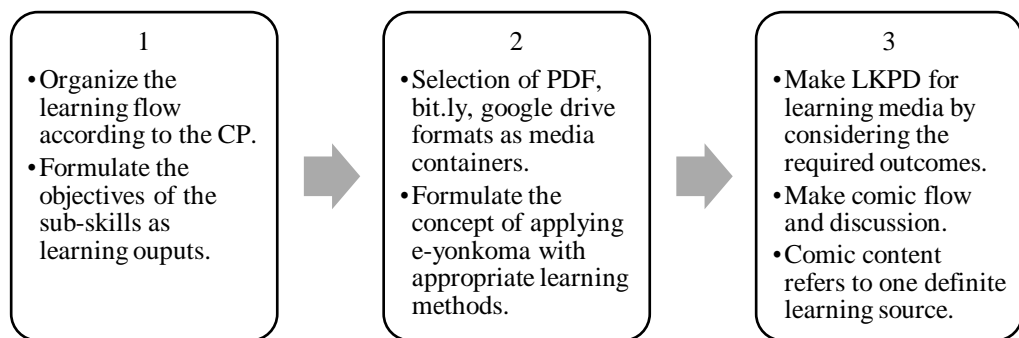


Fig. 1. Flowchart of preparation stage

b. Design stage

The design is aimed at creating a media draft that can increase students' enthusiasm in learning Japanese and as a support for increasing critical thinking skills. The design stage consists of several steps, including:

Initial stage. At this stage, after the lesson plan has been formed, continued with the creation of comic storyboards. The storyboard is in the form of a rough description of the flow and scenes which will then be refined into a four-panel comic with a coherent flow and includes learning material that will be conveyed to students. The storyboard takes the form of descriptions in the form of sentences, and rough sketches of each character that will appear in the four-panel comic, as well as their roles.

Second stage. After the concept of implementation comes to the storyboard, the next step is to draw a sketch of each character that appears on the learning media. Drawing activities are carried out digitally using SAI Paint tool software and medibang.

The third stage is to emphasize the sketch lines on the character design. This activity is called lineart. After the character shapes become clearer, names and descriptions are given to each character to bring the plot to life.

The fourth stage is to continue the sketch on the 4-panel comic after getting a physical description of each character that appears. The sketch form is continued with lineart so that the lines in the image become more firm and neat.

The fifth stage is to provide color. The concept of giving color to this four-panel comic is minimalist, that is, the color given is only the basic color without shading.

The sixth stage is drawing and filling in the word balloons needed as a form of storyline in the comic, to animate the comic so that the material to be conveyed becomes clearer.

The seventh stage is integrating e-yonkoma into the LKPD that will be used in learning activities. The unification of e-yonkoma and LKPD uses the Canva platform and Microsoft Power Point software. After the e-yonkoma is put together, the comics are saved into pdf format and uploaded to google drive. Google drive links that are too long cause less practicality to access. So, the google drive link was transformed into a shorter link (shortened link) and made it also into the form of a barcode.

3.6 Revision

After the initial draft of the learning media is completed, the next step is to revise the media based on criticism and suggestions from the validators. This revision aims to produce a media draft that is suitable for testing in limited trial activities. Media approval was given by media experts and material experts.

Some of the suggestions obtained from the validators related to media improvement are as follows:

- 1) You can use font selection that is easier to read, you should avoid using handwriting and serif fonts, or fonts that have looping in some letters such as k, y, h, g, etc. because they are prone to being difficult to read.

Before revision



Fig. 2. Font before revision

After revision



Fig. 3. Font after revision

- Headings should be typed, rather than using direct writing. Japanese words can be made into one line only. You can adjust the layout with upper and lower case, or thick and thin text.

Before revision



Fig. 4. Heading before revision

After revision



Fig. 5. Heading after revision

- Pay attention to the space between the headline and the content, don't be too tight.
- The layout for characters can also be neater and use a guide or grid.
- For character descriptions, pay attention to the leading in the paragraph. Keep the length of each line parallel or stable. Try to keep the tracking between lines not too extreme so that the flow of reading is not difficult.
- Pay attention to the paper margins. Names and descriptions are aligned, and the space between characters should not be too tight. Take advantage of the negative area or empty space on the paper, by utilizing negative space, the reading flow becomes more organized and easy to understand.

Before revision



Fig. 6. Point 2-6 before revision

After revision



Fig. 7. Point 2-6 after revision

- 7) For typesetting avoid using a capital i with a dash in the middle of the word.
- 8) The distance between the text and the word balloons should not be tight, given space.
- 9) Time captions should not use a circle shape because it is similar to a word balloon. A square shape can be used, and a color can be used to differentiate between the time caption and the dialogue.
- 10) The sound effect should not be attached to the word balloon, it will be illegible.
- 11) Since this is an illustration of a phone conversation, the word balloon should not be attached to the character's head. Instead, the tail on the word balloon can be given more length to make the word balloon farther away, and to emphasize that it is a real conversation from the phone.
- 12)

Before revision



Fig. 8. Point 7-11 before revision

After revision



Fig. 9. Point 7-11 after revision

Table 4. Weakness and improvements to the media by media expert validators.

No.	Weakness	Improvements
1	The type of writing/font can still be developed.	Use more varied fonts.

The following are weakness and suggestions for media improvement from the results of the material expert validator assessment:

Table 5. Weakness and improvements to the media by the material expert validator.

No.	Weakness	Improvements
1	Correction of the parts that were written incorrectly	Writing errors have been corrected

Based on these criticisms and suggestions, revisions were made to the initial draft and then consulted again with the validators to produce the final draft.

3.7 Quality of E-Yonkoma Learning Media Development Results

1) Validation by Media Experts

To determine the feasibility of the teaching materials developed, validation activities were carried out by media experts. This media expert evaluates learning media based

on the influence of learning media in learning and the physical appearance of learning media. The evaluation is carried out by selecting five alternative answer choices that have been provided in each statement. The data obtained was then analyzed descriptively quantitatively to determine the feasibility of learning media.

The following is an analysis of the results of media expert validation on each indicator:

1. The material provided is in accordance with the original purpose of making learning media. From the media expert validation of statement item 1, the results show that the development of e-yonkoma learning media has met the eligibility criteria based on the material provided in accordance with the original purpose of making learning media with a percentage of 80%. The percentage of 80% is included in the strong criteria. This shows that the media has provided material that is in accordance with the original purpose of making the media.
2. The depth of the material is in accordance with what will be achieved by class X high school students. Based on the suitability of the depth of material that will be achieved by Class X high school students, the learning media has reached the eligibility criteria with a percentage of 80%. The percentage of 80% is included in the strong criteria. This shows that the media has adjusted the depth of material in accordance with the Learning Outcomes (CP).
3. E-Yonkoma learning media is in accordance with the objectives to be achieved. The results of the media expert validation show that the e-yonkoma learning media is in accordance with the objectives to be achieved, with 100% eligibility criteria. The 100% percentage is included in the very strong criteria. This shows that e-yonkoma learning media is in accordance with the initial purpose of making media.
4. The content structure is appropriate and the material presented in the product is appropriate. Judging from the accuracy of the content structure that is in accordance with the material presented in the e-yonkoma learning media, the eligibility criteria obtained are 100%. The 100% percentage is included in the very strong criteria. This shows that the content structure of the e-yonkoma learning media is in accordance with the material presented in the product.
5. E-Yonkoma learning media can increase student enthusiasm. Based on the indicators of e-yonkoma learning media can increase student enthusiasm, the eligibility criteria obtained is 80%. The 80% percentage is included in the strong criteria. This shows that e-yonkoma learning media can increase students' enthusiasm in learning Japanese.

6. E-Yonkoma Learning Media can trigger interaction between students. Based on the indicator of e-yonkoma learning media can trigger interaction between students, the eligibility criteria obtained is 100%. The 100% percentage is included in the very strong criteria. This shows that e-yonkoma learning media can trigger interaction between students in Japanese language learning activities.
7. E-Yonkoma learning media can increase students' motivation in learning Japanese. Based on the indicator of E-Yonkoma learning media can increase students' motivation in learning Japanese, the eligibility criteria obtained is 80%. The percentage of 80% is included in the strong criteria. This shows that e-yonkoma learning media can increase students' motivation in learning Japanese.
8. The appearance of layout elements on the cover harmoniously has rhythm and unity and is consistent. In terms of layout, based on the indicator of the appearance of layout elements on the cover harmoniously has rhythm and unity and is consistent, the eligibility criteria obtained is 80%. The percentage of 80% is included in the strong criteria. This shows that the appearance of layout elements on the cover of e-yonkoma learning media has a harmonious rhythm and unity consistently.
9. The color of the layout elements is harmonious and clarifies the function. Based on the indicator that the color of the layout elements is harmonious and clarifies the function, the eligibility criteria obtained is 80%. The percentage of 80% is included in the strong criteria. This shows that the color of the layout elements on the e-yonkoma learning media is harmonious and clarifies the function.
10. The font used is interesting and easy to read. Based on the graphic indicators in terms of the letters used are interesting and easy to read, the eligibility criteria obtained are 80%. The percentage of 80% is included in the strong criteria. This shows that e-yonkoma learning media uses letters that are interesting and easy to read so as not to cause errors in reading interpretation.
11. The placement of titles, subtitles, illustrations, and image captions does not interfere with understanding. In terms of layout with indicators of the placement of titles, subtitles, illustrations, and image captions do not interfere with understanding, the eligibility criteria obtained are 100%. The percentage of 100% is included in the very strong criteria. This shows that the placement of titles, subtitles, illustrations, and image captions on e-yonkoma learning media does not interfere with understanding in Japanese language learning activities.

12. Media is easy to use by students. Based on the indicator of the ease of media to be used by students, the eligibility criteria obtained is 100%. The 100% percentage is included in the very strong criteria. This shows that e-yonkoma learning media is a simple and practical learning media, and easy to use by students.
13. Media is easy for students to understand. Based on the media indicators that are easily understood by students, the eligibility criteria obtained are 100%. The 100% percentage is included in the very strong criteria. This shows that e-yonkoma learning media is easily understood by students with its practicality.

Overall, media experts stated that the development of e-yonkoma as a Japanese language learning media to improve critical thinking skills of SMA Negeri 7 Malang students has good quality and is suitable for use with very strong response criteria with a percentage of 89.2% with minor revisions.

2) Material Expert Validation

In addition to validation by media experts, E-Yonkoma learning media has been validated by material experts. Evaluation from material experts focused on the content and physical appearance of the media. The product is assessed by choosing one of the five assessment alternatives.

Below is an analysis of each indicator of the results of the material expert validation:

1. Content of Learning Outcomes (CP) can be applied in E-Yonkoma Learning Media. With a percentage of 100% eligibility criteria, e-yonkoma learning media contains Learning Outcomes (CP) with very strong criteria. This shows that the e-yonkoma learning media developed can implement the CP that has been determined.
2. The material contained in the E-Yonkoma Learning Media is in accordance with the CPs. In the indicator stating that the material contained in the E-Yonkoma learning media is in accordance with the CP, the percentage obtained is 80%, with a strong criteria category. This means that the material presented through e-yonkoma is in accordance with the CP.
3. The material contained in the E-Yonkoma Learning Media is in accordance with the students' ability level. In the indicator stating that the material contained in the E-Yonkoma learning media is in accordance with the level of student ability, the percentage obtained is 80%, with a strong criteria category. This means that the material presented through e-yonkoma is in accordance with the students' ability level.
4. Learning Media in accordance with the vocabulary contained in the Let's Learn Japanese Module 1. The Let's Learn Japanese 1 study module

contains a variety of vocabulary that is used as a reference for Japanese language learning for class X students of SMA Negeri 7 Malang. With learning media indicators in accordance with the vocabulary contained in the Let's Learn Japanese 1 module with 100% eligibility criteria, e-yonkoma media obtained very strong criteria. So, this shows that the learning media is in accordance with the vocabulary contained in the Let's Learn Japanese 1 module.

5. Learning Media meets the eligibility criteria based on the suitability of the vocabulary contained in the Let's Learn Japanese 1 Module. From the indicator of learning media that meets the eligibility criteria based on the suitability of the vocabulary contained in the Let's Learn Japanese 1 Module, the percentage obtained is 80% with strong criteria. This shows that the vocabulary presented in the e-yonkoma learning media is in accordance with that in the Let's Learn Japanese Module 1, as teaching material.
6. The theme is in accordance with the learning material of Japanese Language Class X. From the indicator of the theme that is in accordance with the learning material of Japanese Language Class X, the percentage obtained is 100% with very strong criteria. This shows that the appointment of themes in the e-yonkoma media is in accordance with the Japanese language learning materials of Grade X.
7. Use of images according to the theme. From the indicator of the use of images according to the theme, the percentage obtained is 100% with very strong criteria. This shows that the use of images presented by e-yonkoma learning media is in accordance with the theme.
8. The storyline presented in the learning media can be understood. From the indicators seen in terms of the storyline presented on the learning media can be understood, the percentage obtained is 80% with strong criteria. This shows that the storyline in the e-yonkoma learning media can be understood well.
9. Learning media clarifies the description of the material presented. Based on the learning media indicators clarify the description of the material presented, the percentage obtained is 100% with very strong criteria. This shows that the learning media succeeds in clarifying the description of the material presented.
10. Illustrations on Learning Media are easy to understand. On the indicator of illustrations on learning media is easy to understand, the percentage obtained is 80% with strong criteria. This shows that the illustrations presented in the learning media are easy to understand for e-yonkoma media users.

11. Media makes learning more interesting. With the visuals presented, the media can make learning more interesting, as evidenced by the percentage obtained is 100% with very strong criteria. This shows that e-yonkoma learning media can make Japanese language learning activities more interesting.
12. Learning media innovation in accordance with the new paradigm to face the challenges of the 21st century. To face the challenges of the 21st century, innovation in learning media is needed by carrying out a new paradigm. From the related indicators, a percentage of 80% was obtained with strong criteria. This shows that with its digital form, e-yonkoma learning media has met the criteria of an innovative learning media.
13. Learning media makes it easier for teachers to deliver material. Learning media is basically media that is used to help the learning process. From the indicator of learning media making it easier for teachers to deliver material, the percentage obtained is 80% with strong criteria. This shows that e-yonkoma learning media can make it easier for teachers to deliver Japanese learning materials.
14. Learning media can trigger students to think critically. The main purpose of e-yonkoma learning media in this study is to improve students' critical thinking skills. Based on these indicators, a percentage of 80% was obtained with strong criteria. This shows that e-yonkoma learning media can trigger students to think critically, supported by learning activities in accordance with the Learning Implementation Plan.
15. Learning media can trigger students to raise critical questions. From the indicator of learning media can trigger students to raise critical questions, the percentage obtained is 80% with strong criteria. This shows that e-yonkoma learning media can trigger students to raise critical questions supported by appropriate learning methods.
16. Learning media makes it easier for students in Japanese learning activities. From the indicator of learning media making it easier for students in Japanese learning activities, a percentage of 100% was obtained with very strong criteria. This shows that e-yonkoma learning media can facilitate students in Japanese learning activities with practicality, attractive visuals, and material presented in 4 panels.

The material expert stated that the development of material on e-yonkoma as Japanese language learning media to improve critical thinking skills was of good quality and suitable for use with very strong response criteria with a percentage of 88.75% with minor revisions.

In accordance with the validation of media experts and material experts, overall, e-yonkoma learning media has met the criteria with a percentage of 88.97%. With this percentage entering into very strong criteria, so that e-yonkoma learning media can be declared of good quality and feasible as a supporting media in learning activities.

3.8 Discussions

Based on the results given, in the purpose of E-Yonkoma as a Japanese language learning media to improve students' critical thinking skills, it shows that E-Yonkoma meets the criteria of "Very Strong" based on the aspects that students need in Japanese language learning activities. This shows that E-Yonkoma as a learning media is needed, considering the new challenges of the 21st century education world with a new paradigm. E-Yonkoma as a learning media can be a learning media that helps students' Japanese learning success. Then, based on the aspect of online learning, E-Yonkoma also has the potential to become a medium that is able to meet the media needs of students in learning Japanese. Furthermore, the aspect of facing new challenges in 21st century education and fulfilling 21st century skills; through its novelty, E-Yonkoma also has the potential to meet these criteria. And with comic strips that are packaged into an electronic form of E-Yonkoma, E-Yonkoma will meet the needs of students in improving learning quality and learning media, with adequate learning media according to technological developments. The validation results from media experts and material experts also show the feasibility of E-Yonkoma as a Japanese language learning media with the category "Very Feasible" with minor revisions. Revisions were made with the aim of making it easier to understand the delivery of material in E-Yonkoma, which is not only based on content, but also considers design in detail.

4 Conclusions and Suggestions

4.1 Conclusions

- 1) The development process applied to e-yonkoma learning media has been in accordance with the procedure, namely (1) Analyzing the needs and characteristics of students, and found that students need digital learning media with a new model and using a new paradigm that supports 21st century challenges, which can increase interest in learning Japanese and critical thinking skills. (2) Specification of objectives, with the conclusion that the formation of e-yonkoma learning media is made by adjusting the Japanese Language Learning Outcomes (CP), so that the media can function optimally. (3) Outlining the elements of the material with the conclusion that the predetermined learning objectives can be achieved by students. (4) Making products that conclude the implementation of e-yonkoma learning media adapted to the previous steps. (5) Revising the e-yonkoma learning media that produces the final draft.

- 2) The quality of e-yonkoma learning media development in Japanese language learning Class X, namely (1) Based on the validation of media experts who are adjusted to the aspects of content feasibility and physical appearance of e-yonkoma learning media, it is qualified and feasible to use with very strong response criteria with a percentage of 89.2%. (2) Based on the validation of material experts who are adjusted to the feasibility aspects of the content and physical appearance of learning media e-yonkoma is qualified and feasible to use with very strong response criteria with a percentage of 88.97%.
- 3) The effectiveness of this e-yonkoma learning media has not been carried out because it is constrained by time and also the amount of funds. In the future, it will be continued again so that the effectiveness of the use of e-yonkoma learning media can be measured and accounted for.

4.2 Suggestions

1. With students already accustomed to online learning, digital-based learning media is also needed.
2. Motivation from teachers is also needed so that students have the willingness to operate digital learning media, so that the learning process goes according to plan.
3. Required to support E-Yonkoma learning are 1) Students have smartphone facilities; 2) Students are allowed to use smartphones in the learning process, but with supervision; 3) Wi-Fi facilities provided by the school function quite well.

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