

Development of Interactive Digital Worksheets (LKPD) Using Liveworksheet to Improve the Reading Skills of Javanese Script

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Abstract

The learning media currently used for teaching Javanese script reading do not meet the needs of teachers and students in terms of quality and quantity. This issue affects the quality of learning and, consequently, student learning outcomes. Therefore, the aim of this study is to develop an interactive digital worksheet (LKPD) using Liveworksheet, based on the ADDIE model, to assess the validity of its quality and measure its effectiveness in improving students' Javanese script reading skills. This research follows an R&D and experimental design. The selected sample consisting of 31 students from population 191 students. The methods used include observation, interviews, questionnaires, and tests. Instruments used to collect data are validation test sheets and tests. The data analysis technique employed is descriptive statistical analysis. The interactive digital worksheet Liveworksheet has a significant impact on improving students' Javanese script reading skills. It is concluded that the interactive digital worksheet Liveworksheet is feasible to use as a learning medium for Javanese script reading and is effective in enhancing students' reading skills in Javanese script.

Keywords: Liveworksheets, Javanese Script, ADDIE Model

1. Introduction

This research is motivated by the problem of learning to read Javanese characters that have not found optimal learning media to improve students' Javanese reading skills. In the independent curriculum, the learning outcomes of reading Javanese characters including carakan characters, pairs, sandhangan, and Javanese numerals are taught in Phase D or in grade 7 of junior high school. In practice, there are many problems in learning to read Javanese characters, which have an impact on the low reading skills of students. One of the causes is the Javanese script learning media that has not met the needs of students and teachers in terms of quality and quantity. Students learn to read Javanese characters using conventional and non-interactive media, so the learning atmosphere tends to be monotonous and boring. Therefore, there is a need for innovation to help students achieve the criteria for the completeness of learning objectives. The utilization of technology as learning media will make it easier for teachers to deliver material (Perdana et al, 2017). TPACK is needed by teachers to improve pedagogical and abstract understanding practices along with technological literature (Baram & Uygun: 2016). The existence of learning media can increase the enthusiasm, activeness, and motivation of students to learn, so that it can make the learning process more effective (Made Yeni Suranti & Sahidu, 2016). Referring to technological developments, interactive digital worksheet applications are very suitable for

learning processes that are difficult to understand and learn (Buyukozkan & Gocer, 2018). Based on student pretest results, the percentage of class completeness reached 19.4% in the learning achievement of reading Javanese characters. This is in line with the research of Estianti & Masjid (2021) that Javanese characters are the most difficult material to understand and are not favored by students. Teachers should use learning media applications such as liveworksheet applications, to excite students when teachers give assignments (Baltrusaistis et al., 2019). Students who learn and complete tasks involving educational applications become more interested, and enthusiastic in learning (DeGregory et al., 2019).

One of the advantages of liveworksheet is user-friendly accessibility, in making liveworksheet users only need to use 13 variations in making various questions, so there is no need to memorize certain codes. This makes it very easy for teachers to make worksheets, considering that learning currently requires an innovative teaching material as a medium that can provide visualization to make it easier for students to understand learning and help deliver material practically (Santosa et al., 2022). Liveworksheet interactive digital LKPD provides video, audio, hyperlinks, images, text features. This can attract student interest and focus in learning. LKPD Digital has an important role in learning so that students do not only receive feeds but search for themselves by actively participating in the learning process (Prastika & Masniladevi, 2021).

Based on observations in the field, in addition to learning media for reading Javanese characters that have not met the needs of students and teachers in terms of quality and quantity, it is also found that Javanese language subjects are only taught once face-to-face (2 lesson hours or 80 minutes) every week. The limited learning time causes Javanese language learning, especially reading Javanese characters, to be less effective. This causes teachers and students to lack time in learning the material. Therefore, technology-based and interactive learning media are needed that can increase the effectiveness of learning to read Javanese characters in the era of globalization 4.0.

Learning to read Javanese characters at SMP Negeri 1 Depok Sleman uses teaching media in the form of printed LKPD and using Microsoft Powerpoint. So that during learning students tend to be busy taking notes but do not understand the concept of the material being taught. A similar statement is in line with Saputra and Effendi's research (2021) which states that current learning is only oriented towards monotonous teacher explanations by conveying information using books and power points. This causes students to immediately record what the teacher says but not focus on the teacher's explanation, and there is no two-way interaction in learning. The conventional teaching media can be developed in a more interactive and interesting form, which is tailored to the needs of students and the needs of teachers. This will lead to an increase in students' Javanese reading skills.

2. LITERATUR REVIEW

Javanese script is one of the many results of Javanese culture that has value, especially in social life (Raharjo, 2019). Javanese script is also an asset that contains certain characters used by the Javanese community (Ramadhani, 2020). Furthermore, Javanese script is one of the literacy systems, especially from regional languages in Indonesia (Hapsari: 2022). Meanwhile, according to Wijayanti (2012) Javanese script is a form of script writing that is respected by the community and used as a means of communication. Therefore, Javanese script is important to preserve because it is not only knowledge but also contains a variety of values to realize the personality of students to be in harmony with the personality of Javanese society.

Liveworksheet has advantages and disadvantages, including (1) its accessibility (Le, 2023: 275). Accessibility relates to the ease with which users can access the learning media. The use of liveworksheet interactive digital LKPD does not require special skills, only an internet network is required. (2) Effective, liveworksheet interactive digital LKPD automatically provides an assessment of student work. Students can find out mistakes in working on questions, because formative grades can come out automatically (Agustin: 2020). This makes the teacher faster in analyzing questions and evaluating learning. (3) Variative, teachers can produce various practice questions tailored to skills such as listening, speaking, reading, and writing. The types of practice questions can be various such as multiple choice, fill in the blank, matching, drag and drop, reset, song, movie, or video based activities. Teachers can combine various features such as word melting, crossword, and jigsaw in one worksheet (Agustin, 2022). (4) flexibility, liveworksheet digital LKPD can be used anywhere and anytime. So the liveworksheet is user-friendly and environmentally friendly. This is because it does not use paper, so many trees are preserved.

The disadvantages of liveworksheet include (1) related to audio and video (Le, 2023). For example, audio files can be uploaded with a maximum size of 5 MB per file, then videos can only be uploaded from the YouTube platform. This means that the liveworksheet creator must upload the video on YouTube before adding a video link in the liveworksheet. (2) One liveworksheet file is limited to 15 sheets, meaning that if it exceeds 15 sheets, the liveworksheet creator must make it more than one worksheet.

Liveworksheet interactive digital LKPD is a learning media developed to improve students' Javanese script reading skills combined with an independent curriculum. The independent curriculum is a curriculum that provides opportunities for students to learn in a fun, relaxed, calm, pressure-free way, and displays student talents (Mabsutsah & Yushardi, 2022: 205). So the use of interactive digital LKPD is in line with the objectives of implementing an independent curriculum in schools. Based on previous research, the use of digital LKPD in learning has an impact on student learning activities becoming more enjoyable, learning is more interactive, and allows students to practice in learning (Puspita & Dewi, 2021). The development of digital-based LKPD with the help of web media will have a significant effect on increasing students' interest in learning. This is in line with the opinion of Farman (2021) who states that Liveworksheet-based e-LKPD makes students enthusiastic during learning, independent, confident, and students' curiosity is getting higher.

Teachers who use technology as learning media can make the learning process more interesting and seem more real, so that students do not feel bored with what they are learning (Asrial et al., 2020). Learning media can demonstrate certain facts, concepts, principles or procedures to make them appear more concrete. So that with the media can provide a more real experience, motivate, increase absorption, and student memory in learning. So, liveworksheet interactive digital LKPD in learning acts as a digital and interactive learning media. Digital means that learning media can be accessed using a device or PC. While interactive means mutually active or reciprocal.

3. METHODOLOGY

This research uses the research and development (R&D) method. Amile and Reesnes (2015: 297) state that the research and development method is carried out to produce a certain product and then test the effectiveness of the product. Meanwhile, according to Brog and Gall (1983: 772) stated that research and development research is a research process used to develop educational products. The development in

this study refers to the ADDIE model developed by Dick & Carry. The ADDIE research model is a systematic step-by-step research model, including analysis, design, development or production, implementation, and evaluation (Sugiyono, 2015: 200). Learning products are validated by material experts and media experts until they get good product quality. Then the product in the form of interactive digital LKPD learning media liveworksheet is used as a teaching medium in learning to read Javanese characters in class 7 SMP Negeri 1 Depok Sleman. The application of the product in learning is to measure the effectiveness of the product in improving the reading skills of seventh grade students. The population was 8 classes randomly selected using cluster random sampling, totaling 191 students. The sample in this study amounted to 31 students. How to collect data using interviews, observations, questionnaires, and tests. Data collection instruments used interviews, observations, questionnaires, and tests. The test was conducted twice, namely pretest and posstest, by utilizing googleform. The pretest and posttest questions consisted of 25 questions, with the same question weight, but with different question forms. Data analysis of product quality validation, as follows:

Table 1. Material and media quality validity instruments

| Material Quality Validity | | Media Quality Validity | |
|---------------------------------|------------------|------------------------|-----------|
| Aspects | Indicator | Aspects | Indicator |
| Feasibility of content/material | 1,2,3,4,5,6,7,8 | Media display | 1,2,3,4 |
| Presentation feasibility | 9,10,11,12,13,14 | Creativity | 5,6,7 |
| Language feasibility | 15,16,17,18,19 | Product Usage | 8.9.10 |

Material and media validation data were analyzed by referring to the following validity formula:

$$P = \frac{x}{x_{maks}} \times 100\%$$

(Mawarni, N; Sinuraya, 2022)

Table 2: Percentage of Expert Validation Criteria

| Percentage | Category |
|----------------|-----------|
| 80% < X ≤ 100% | Very good |
| 60% < X ≤ 80% | Good |
| 40% < X ≤ 60% | Fair |
| 20% < X ≤ 40% | Deficient |
| X ≤ 20% | Very poor |

(Sugiyono, 2019)

While the data analysis for the pretest and posttest was carried out referring to the validity formula as follows:

Table 3. Instrumen Pretest and Posttest

| Assessment Indicator | Quantity of Qution |
|--|--------------------|
| Students can read sentences containing aksara legena | 5 |
| Students are able to read sentences containing aksara legena with sandangan | 5 |
| Students are able to read sentences containing aksara legena with sandangan and pasangan | 5 |

| | |
|--|---|
| Students can read sentences containing aksara legena with sandangan, pasangan, and Javanese numerals | 5 |
| Students can identify information from sentences written using aksara legena containing sandangan, pasangan, and Javanese numerals | 5 |

Table 4. Details of Learning Objective Achievement Score

| Score | Category |
|----------------------|---------------|
| $76 \leq X \leq 100$ | Completed |
| $X \leq 74$ | Not Completed |

Table 5. Percentage of Class Completion

| Persentase | Kategori |
|-----------------------|-----------|
| $80\% < X \leq 100\%$ | Very good |
| $60\% < X \leq 80\%$ | Good |
| $40\% < X \leq 60\%$ | Fair |
| $20\% < X \leq 40\%$ | Deficient |
| $X \leq 20\%$ | Very poor |

(Sugiyono, 2019)

This research uses qualitative descriptive analysis techniques by describing the results of product development in the form of mean, mode, range, maximum value, and minimum value on pretest and posstest. To get these results, the data were processed using SPSS 22 software.

4. RESULT AND DISCUSSION

This research is an educational product development research, in the form of learning media Interactive Digital Learner Worksheet Liveworksheet which aims to improve the reading skills of Javanese characters of VII grade junior high school students. The development procedures include analysis, design, development or production, implementation, and evaluation. The analysis stage includes 4 things, namely needs analysis, curriculum analysis, material analysis, technology analysis. This stage is carried out in order to produce quality products, harmonize the needs of students and teachers by integrating TPACK, independent curriculum, and Javanese script material (which includes dentawyanajana script accompanied by sandhangan, sandhangan, and Javanese numbers). Next is the design stage which consists of designing learning materials where the material contained must be adjusted to the learning outcomes, designing media (template design, theme, color, layout), designing research instruments in the form of material and media validation sheet questionnaires.

The next stage is development, the development of Liveworksheet Interactive Digital LKPD consists of title, author's identity, identity of learning materials (subject, phase/class, learning outcomes, learning objectives, indicators of learning achievement), material, practice questions, formative questions, reflection sheets, and bibliography. Before the product is applied in the learning process of reading Javanese characters, it must pass the validation test by material experts and media experts.

3.1 Cover page

The cover contains the title, class, user identity, and author identity.

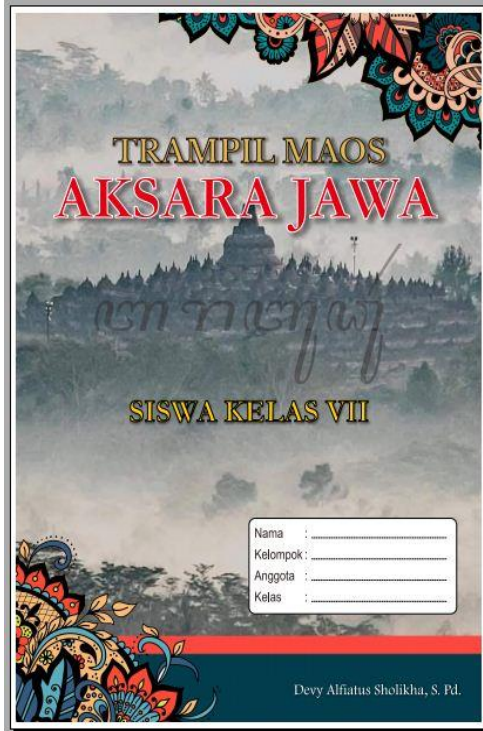


Figure 1. Cover page

3.2 Instructions for using the Liveworksheet Interactive Digital LKPD

Instructions for use contain steps that must be followed by students when using the Liveworksheet Interactive Digital LKPD.

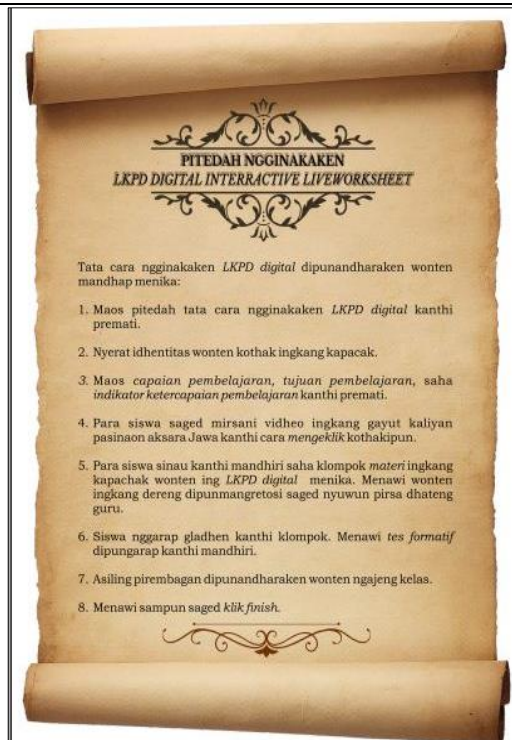


Figure 2. Instructions for use

3.3 Identity of learning materials

The identity of learning materials contains phase, class, semester, curriculum, learning outcomes, learning objectives, learning achievement indicators. Learning achievement indicators are obtained from learning objectives that are adjusted to student conditions.

3.4 Scope of learning

In the scope of learning to make it easier for students to understand the learning flow, a concept map is made that applies the learning flow including legena script accompanied by legena pasangan, sandhangan, and Javanese numbers.

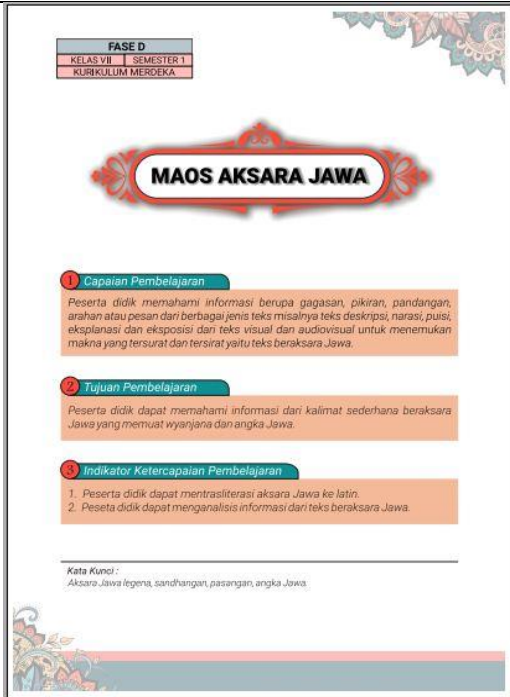


Figure 3. Learning Identity

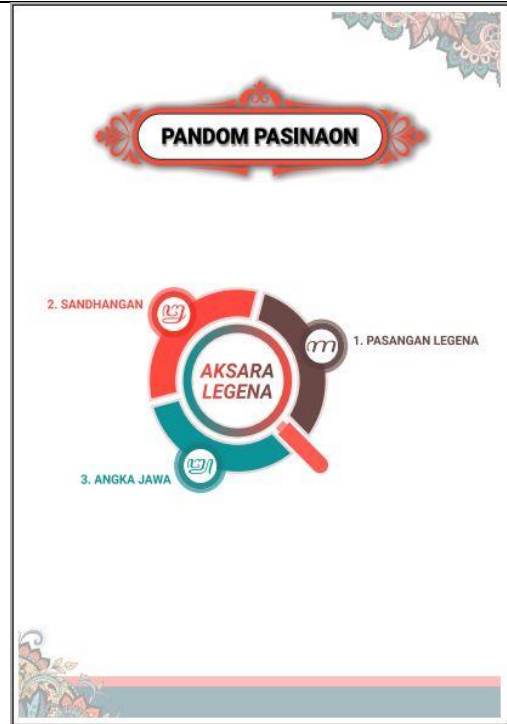


Figure 4. Scope of Learning

3.5 Trigger question

The triggering questions were about students' Javanese learning experience

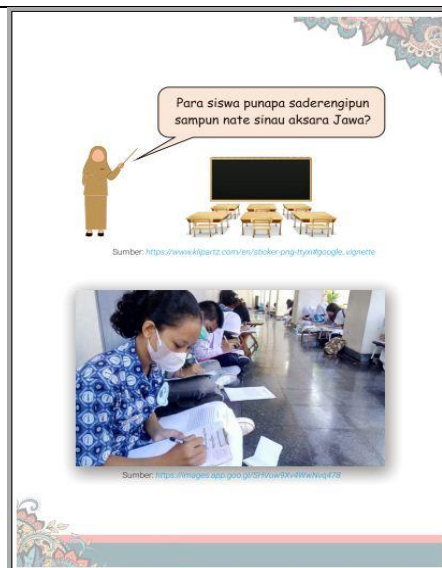


Figure 5. Trigger question

3.6 Learning Materials

The learning materials include legena script accompanied by legena pairs, sandhangan, and Javanese numerals. To display interesting learning content, the learning content not only contains text, but also images, videos, and hyperlinks.



Figure 6. Javanese Script Material

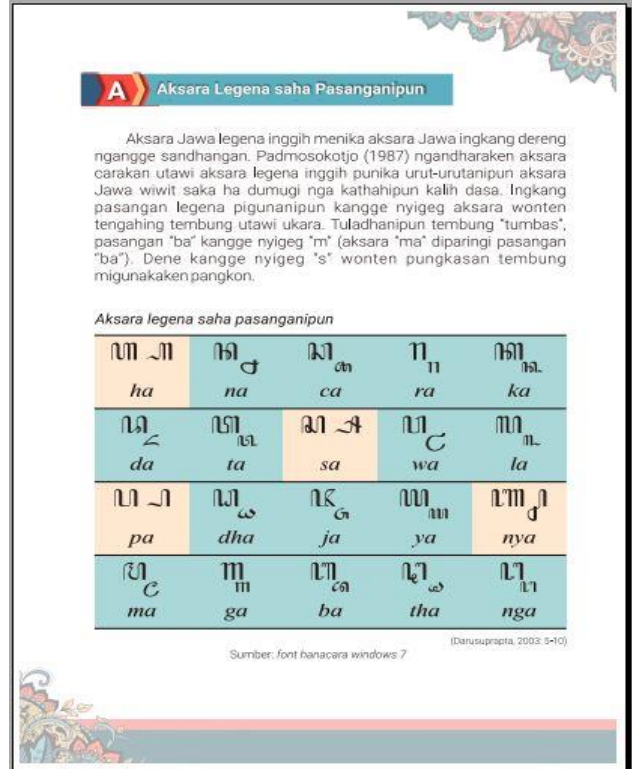


Figure 7. Legena script material

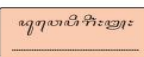



Figure 8. Video & Sample Problem


3.7 Exercise questions with various variations that are interactive


GLADHEN 1

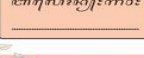
Gathukna ukara ing sisih kiwa karo gambar ing sisih tengen!

1. 

2. 

3. 

4. 

5. 












Figure 9. Matching Questions

GLADHEN 2

Rembagan Klompok

Para siswa mangga daniel klompok kanthi cacahipun 3-5 siswa kangge ngrembug pitakenan wonten tabed menika!

A. Mangga dipunjanglepi tabel menika kanthi ngisi kothak titik titik!

| NO | SERATAN LATIN | SERATAN AKSARA JAWA | DIPUNWAOS |
|-----|---------------------------|---------------------|-----------|
| 1. | da ditambah layar | da | |
| 2. | sa ditambah cecek | sa | |
| 3. | wa ditambah wignyan | wa | |
| 4. | na ditambah taling | na | |
| 5. | nya ditambah wulu | nya | |
| 6. | la ditambah taling tarung | la | |
| 7. | ba ditambah suku | ba | |
| 8. | ca ditambah cakra | ca | |
| 9. | ka ditambah cakra keret | ka | |
| 10. | ma ditambah parjng la | ma | |

Figure 10. Translate syllables

B. Para siswa mangga dipunwaos seratan aksara Jawa wonten ngandhap menika!

| NO. | SERATAN AKSARA JAWA | SERATAN LATIN |
|-----|---------------------|---------------|
| 1. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 2. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 3. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 4. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 5. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |

C. Para siswa mangga seratan aksara Jawa menika dipunowahi dados aksara Latin wonten kothak ingkang sampun kasedya!

| NO. | AKSARA JAWA | LATIN | AKSARA JAWA | LATIN | AKSARA JAWA | LATIN |
|-----|-------------|-------|-------------|-------|-------------|-------|
| 1. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 2. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 3. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 4. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 5. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 6. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 7. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 8. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 9. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| 10. | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | | ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |

Figure 11. Translate words & phrases

D. Para siswa mangga seratan ukara aksara Jawa menika dipunowahi dados aksara Latin wonten kothak ingkang sampun kasedya!

| SERATAN AKSARA JAWA | SERATAN LATIN |
|---------------------|---------------|
| ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
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| ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |
| ꦲꦠꦠꦤ꧀ꦠꦶꦱ | |

Sumber: <https://www.pengajar.com/2019/08/2018/>

Figure 12. Translating sentences

Evaluasi

Para siswa sasampunipun sinau materi maos aksara Jawa, mangga para siswa nggarap tes formatif supados mengrosi katrampilan anggipun maos aksara Jawa. Kangge nggarap tes formatif mangga klik link wonten ngandhap menika!

[klik miiki](#)

Refleksi

1. Menapa kemawon ingkang sampun dipunsinauni wonten materi aksara Jawa?
2. Menapa materi ingkang langkung dipunkuwasani?
3. Menapa materi ingkang awrat dipunpahami?
4. Menapa bab ingkang andamel para siswa remen sinau aksara Jawa?
5. Menapa bab ingkang andamel para siswa boten remen sinau aksara Jawa?
6. Menapa pasinaon aksara Jawa narik kawigatosan? Mangga dipunjentrehaken!

Figure 15. Evaluation & Reflection sheet

DHAPTAR KAPUSTAKAN

Darusuprpta, dkk. (2003). *Pedoman Penulisan Aksara Jawa*. Yogyakarta: Gava Media

Padmosoekotjo, S. (1987). *Wewaton Panulisan Basa Jawa Nganggo Aksara Jawa*. PT. Citra Jaya Mukti

Sofwan. (2011). *Kawruh Aruming Basa*. Yogyakarta: Widya Duta Grafika

Figure 16. Reference

At the development stage, the product goes through a validation process carried out by material and media expert validators, the following instruments and results of validation of interactive digital LKPD media liveworksheet:

Table 6. Material Validation Results

| Aspects | Number of Questions | Achievement Score | Maximum Score | Category |
|--------------------------------------|---------------------|-------------------|---------------|-----------|
| Feasibility of content/material | 8 | 38 | 40 | |
| Feasibility of presentation (layout) | 6 | 27 | 30 | |
| Language feasibility | 5 | 23 | 25 | |
| Total score | | 88 | 100 | |
| Average percentage score | | 92,6% | | Very good |

Material validation is adapted from Hackbarrth (1996), consisting of three aspects, namely the feasibility of content, presentation, language. Material feasibility validation aims to determine the suitability of the content of the media content developed with the needs of students and teachers. The results of the material validation showed that the average percentage value reached 92.6% with a very good category. The results of the feasibility of this material were obtained after conducting guidance and revision of the material expert.

Table 7. Media Validation Results

| Aspects | Number of Questions | Achievement Score | Maximum Score | Category |
|--------------------------|---------------------|-------------------|---------------|-----------|
| Media display | 4 | 19 | 20 | |
| Creativity | 3 | 14 | 14 | |
| Product usage | 3 | 15 | 15 | |
| Total score | | 48 | 100 | |
| Average percentage score | | 96% | | Very good |

In the validation of media feasibility there are 3 aspects, namely media display, creativity, and product use. This validation aims to determine the quality of the media developed. The results are interactive digital LKPD liveworksheet. shows an average percentage value reaching 96% with a very good category. The results of the feasibility of this material were obtained after conducting guidance and revision of the material expert.

Furthermore, the implementation stage was tested on 31 seventh grade students, to determine the effectiveness of the product in improving students' Javanese script reading skills. After the liveworksheet interactive digital LKPD media was developed, it was then tested on 7 grade students of SMP Negeri 1 Depok Sleman as a teaching medium in Javanese script reading learning activities which lasted for 2 meetings x 2 JP (2x 80 minutes). Before the activity took place, students were divided into 8 small groups of 3-4 students. After completion, students are asked to fill out a formative test that has been hyperlinked in the liveworksheet interactive digital LKPD media.

The next stage is evaluation, students are counted to take the test 2 times, namely pretest and posttest, Pretest is done before students apply interactive digital LKPD media liveworksheet in learning to read

Javanese characters. While the posttest is carried out after students apply the liveworksheet interactive digital LKPD media in learning to read Javanese characters. The pretest and posttest questions were made different, with the same number of questions, and the same question weight.

The results of the comparison of pretest and posttest data on Javanese script reading skills of seventh grade students of SMP Negeri 1 Depok Sleman can be seen in the following table:

Table 8. Student Achievement of Pretest Learning Objectives

| Score | Total of Student | Percentage | Category |
|----------------------|------------------|------------|--------------|
| $76 \leq X \leq 100$ | 6 | 19,4% | completed |
| $X \leq 74$ | 25 | 80,6% | not complete |

| Interval of completeness | Classification | Min | Max | Median |
|--------------------------|----------------|-----|-----|--------|
| $X \leq 20\%$ | Very Less | 16 | 88 | 64 |

Based on the class completeness table at the pretest stage with a percentage of the number of students as much as 80.6% did not complete KKTP while the percentage of students who passed KKTP was 19.4%, it can be concluded that class completeness is in the very poor category. To overcome this, an effective learning media was developed to improve students' Javanese script reading skills, namely the Liveworksheet Interactive Digital LKPD.

Table 9: Student Posttest Learning Objective Achievement

| Score | Total of Student | Percentage | Category |
|----------------------|------------------|------------|--------------|
| $76 \leq X \leq 100$ | 26 | 83,9% | completed |
| $X \leq 74$ | 5 | 16,1% | not complete |

| Interval of completeness | Classification | Min | Max | Median |
|--------------------------|----------------|-----|-------|--------|
| Very good | 32 | 100 | 85.29 | 92 |

Based on the class completeness table at the posttest stage with a percentage of the number of students as many as 16.12% did not complete KKTP, while the percentage of students who passed KKTP was 83.87%. So based on the results of material quality validation obtained an average percentage value of 92.6%, and material quality validation obtained an average percentage value of 96%, it can be concluded that product development is included in the very good category. Meanwhile, based on the results of class completeness in the pretest, the percentage of class completeness reached 19.4% or 6 students who were complete out of 31 students and an increase in class completeness to 83.8% or 26 students who were complete out of 31 students.

This educational product development research produces Liveworksheet Interactive Digital LKPD products using the Dick & Carry R&D research model. The research model goes through the stages of Analysis, Design, Development, Implementation, and Evaluation (ADDIE). The analysis stage was carried out by means of interviews with Javanese language teachers of class VII SMP Negeri 1 Depok Sleman, observation during the learning process, and pretests to measure students' initial abilities. These activities are the basis for developing Liveworksheet Interactive Digital LKPD media, so that the product can meet the needs of students and teachers.

At the design and development stage, researchers made product prototypes in pdf form to be validated by material experts and media experts. This stage aims to make the quality of the product developed in the excellent category. Criticism and suggestions are used as a basis for improvement for product development. After the product was developed and then entered the validation process, the average score of the percentage of material quality was 92.6% and the average score of the percentage of media quality was 96%. This means that the product is suitable for use as a learning media for reading Javanese characters for seventh grade students.

The next stage is implementation, the product was implemented on 31 seventh grade students of SMPN 1 Depok Sleman. The product was used in two meetings. The first meeting students learned legena script material equipped with legena pairs, sandangan, and Javanese numbers. The second meeting students practiced various forms of evaluation available in the Liveworksheet Interactive Digital LKPD.

The last stage is evaluation. Students work on formative evaluation. The evaluation aims to measure the effectiveness of the Liveworksheet Interactive Digital LKPD product in improving the Javanese script reading skills of seventh grade students. Based on the evaluation, it was found that there was a significant increase between the pretest and posttest. In the pretest, the percentage of class completeness was 19.45% or 6 out of 31 students who completed the KKTP. While in the posttest the percentage of class completeness was 83.8% or 26 out of 31 students who completed KKTP. Based on the comparison of the pretest and posttest evaluation results, the Liveworksheet Interactive Digital LKPD media is effective in improving the Javanese script reading skills of seventh grade students. Related to this, it can be concluded that the results of the development of Liveworksheet Interactive Digital LKPD learning media are feasible to use in learning to read Javanese characters and effective for improving the Javanese script reading skills of seventh grade students. In addition, the use of Liveworksheet Interactive Digital LKPD learning media has a positive effect on student interest in Javanese script material and improves cooperation attitudes. This is in line with previous research which concluded that the conditions of the learning media developed are easy to use by users, both students and teachers, so that learning is meaningful, interesting, fun, and can improve student learning outcomes (Milala et al., 2022). The Liveworksheet Interactive Digital LKPD is declared to have met the criteria for material and media feasibility. In addition, the learning media is effective in improving students' Javanese reading skills. According to Afifah & Puri (2021) this product has advantages compared to other LKPDs, namely it is more efficient because it does not need to use paper, and more effective because it can contain various types of practice questions. The effectiveness of using Liveworksheet Interactive Digital LKPD can be seen from the positive impact on increasing academic achievement and student understanding in learning (Ruhsoh, 2024).

CONCLUSIONS AND RECOMMENDATIONS

This research produces teaching media in the form of Liveworksheet Interactive Digital LKPD developed adapting Dick & Carry, which is interesting and valid in terms of material and media. Based on the results of observations and interviews, it was determined that the right media in overcoming the problems of reading Javanese characters was to develop a Liveworksheet Interactive Digital LKPD, which was used as teaching media in learning. Based on the results of the product validation questionnaire by material and media experts, it shows that the percentage of material feasibility reaches 92.6%, while the percentage of media feasibility reaches 96%, meaning that the developed product is feasible to be applied in learning. After being applied based on the comparison of pretest and posttest results, it shows that there is a

significant increase in Javanese script reading skills, which initially the class KKTP completeness score showed 19.9% in the pretest, after being applied the Liveworksheet Interactive Digital LKPD learning media increased to 83.8% in the posttest. The results of this study can be concluded that the Liveworksheet Interactive Digital LKPD learning media is effective in improving the learning outcomes of reading Javanese characters of VII grade junior high school students.

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