METHODS OF READING AND WRITING JAVANESE PUZZLES USING COMPUTER-BASED VISUAL MEDIA FOR ELEMENTARY SCHOOL STUDENTS

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Abstract: Aksara Jawa is a form of Javanese culture that must be maintained, preserved from an early age. Learning to read and write Aksara Jawa must be taught from an early age so that students have a love for their own culture through Aksara Jawa. This research focuses on describing and explaining the use of puzzle game methods in the subject matter of reading and writing Aksara Jawa with computer-based visual media. The data sources in this study were obtained from literature studies and interviews with speakers. The data obtained are then analyzed with interactive and deductive analysis techniques. The data obtained are then analyzed with interactive and deductive analysis techniques. The results showed that a selection of innovative and creative learning methods was able to increase student motivation to follow the teaching and learning process. Teachers can use learning media to support the learning process of reading and writing Aksara Jawa to achieve learning objectives. With the puzzle game method applied with computer-based visual media, it is one of the uses of the right methods and media to achieve the goal of learning to read and write Aksara Jawa.

Keyword: learning methods; puzzle game, reading and writing Aksara Jawa, computer-based visual media

INTRODUCTION

Javanese is one of the compulsory local content lessons in Central Java. Local content is taught so that the values contained in Javanese culture can be preserved and instilled by the younger generation.[1] One of the mandatory materials taught in learning Javanese is material about the Aksara Jawa. Aksara Jawa is taught in schools starting from Elementary School (SD), Junior High School (SMP), up to Senior High School (SMA) level. The Aksara Jawa is evidence of discoveries from ancient royal history. Javanese writing has a unique and diverse form. The same goes for reading and writing. The Aksara Jawa and the Latin script certainly have differences. Therefore, it is very important for students to learn how to write and read the Aksara Jawa.

Learning to read and write Aksara Jawa is certainly not easy. Of course these activities require effort and hard work from both students and teachers. The teacher as a facilitator must have the ability to foster a sense of enthusiasm, motivation, interest in learning to read and write Aksara Jawa in various ways, both using learning methods and using media in learning. The puzzle game method is one of the methods that can generate motivation for students. The choice of this method in learning to read and write Aksara Jawa has several reasons. According to Abrams and Dundes.[2] Puzzles using as a learning method that can be used for testing the student language intelligence.

The use of the puzzle game method can be done with various media, both print and electronic. Media is a supporting facility/tool in the process of receiving knowledge, namely to convey messages from the sender of the message to the recipient of the message.[3] In this case, the sender of the message is the teacher, the recipient of the message is the student and the message is in the form of knowledge contained in the achievement of learning objectives.

With the media as a means of conveying messages, it is hoped that students will be aroused both in their thoughts, feelings, interests and attention so that the learning process can occur.[4] Learning to read and write Aksara Jawa given to

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[1] BW Setyawan, "The Phenomenon of Using Javanese Language Uploads Among Vocational School Students in Surakarta," *Widyaparwa* 46, no. 2 (2018): 145–156.

[2] AG Ningsih and R Syahrul, "Improving Speaking Skills Through the Puzzle Playing Method for Class X MAS-TI Tabek Gadang, Fifty Cities District. Language, Literature, and Learning," 1, no. 3 (2013).

[3] Rayandra Ashhar, "Creatively Develop Learning Media," 2012; M Kartikasari and FP Rahmawati, "Interactive Learning Media Design 'Tekat Baja' to Enrich the Vocabulary of Javanese Elementary School Students," *Basicedu Journal* 6, no. 3 (2022): 5052–5062.

[4] AS Devi and S Maisaroh, "Development of Learning Media for Pop-up Book Puppets of Pandhawa Figures in Javanese Language Subjects for Class V SD," *Journal of PGSD Indonesia* 3, no. 2 (2017): 1–16.

elementary school students is taught starting in grade III in a simple way with the aim that students are able to read and write Aksara Jawa as a form of preservation and instilling a love for Javanese culture since elementary school. Starting from the differences in how to read and write Aksara Jawa in Latin letters (of course it is an obstacle for students), as well as the importance of preserving and loving Javanese culture through writing Aksara Jawa by the younger generation with innovative and creative learning, the use of computer-based media for learning Javanese language, especially the Aksara Jawa is appropriate for use as a variation on the use of learning media by teachers. In this study, the authors examine one theme with the formulation of the problem How is the game method used in learning to read and write Aksara Jawa with computer-based visual media? The purpose of this study is to describe the use of the game method in learning to read and write Aksara Jawa using computer-based visual media. the author examines one theme with the formulation of the problem How is the use of the game method in learning to read and write Aksara Jawa with computer-based visual media? The purpose of this study is to describe the use of the game method in learning to read and write Aksara Jawa using computer-based visual media. the author examines one theme with the formulation of the problem How is the use of the game method in learning to read and write Aksara Jawa with computer-based visual media? The purpose of this study is to describe the use of the game method in learning to read and write Aksara Jawa using computer-based visual media.

To answer the formulation of the problem posed in this study, the type of research used in this research is descriptive qualitative. The analytical descriptive method is carried out by describing facts, then continuing to analyze the facts found.[5] Data collection techniques used by researchers in this study are library techniques and note-taking techniques. The research instrument was the researcher himself (human instrument) and field notes.

There are three sources of data, namely: primary, secondary, and supporting. The primary data for this research is in the form of library data which discusses learning to read and write Aksara Jawa and computer-based visual media. The secondary and supporting documents are in the form of library documents or downloads from the internet related to learning to read and write Aksara Jawa. Data collection was carried out by library research and in-depth interviews. Data analysis using interactive and deductive analysis to draw a conclusion on the results of data analysis.

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[5] BW Setyawan, "E-Administration System for Effectiveness School Administration in Pandemic Covid-19 Era," *International Journal of Business, Law, and Education* 2, no. 1 (2021): 29–34.

FIND AND DISCUSSION

Learning to Write and Read Aksara Jawa Elementary School

Language skills, namely writing and reading Aksara Jawa, are two skills that are interrelated with one another. These activities are carried out simultaneously. After reading, you will continue with writing activities based on what you read. The activity of reading and writing aksara Jawa are regulated based on SK-KD learning to read and write Aksara Jawa for elementary schools as stipulated in Central Java Governor Decree No. 423.5/5/2010 in SK-KD as follows.

Class III

3. Students are expected to be able to read, understand various kinds of reading texts through intensive reading techniques, beautiful reading, and reading Aksara Jawa with the basic competence of reading simple sentences written in *Aksara Jawa nglegena*.

3.3 Read simple sentences in Aksara Jawa.

4. Be able to write simple essays using a variety of Javanese languages in accordance with the writing rules and write sentences in Aksara Jawa.

4.2 Write simple sentences with the *Aksara Jawa nglegena*.

Class IV

3. Able to read aloud, read comprehension of non-literary texts, and read Aksara Jawa.

3.3 Read words in Aksara Jawa using sandhangan swara (wulu, suku, pepet, taling, taling tarung)

4. Able to write conversations/dialogues in various Javanese languages in accordance with the uploads of writing Aksara Jawa.

4.2 Write Javanese lettered words using sandhangan swara (wulu, tribe, pepet, taling, taling fight)

Class V

3. Able to read and understand children's story texts, read beautifully and read Aksara Jawa.

3.3 Read simple sentences in Aksara Jawa using pairs.

4. Able to write simple reports in certain varieties of Javanese and write Javanese characters

4.2 Write simple sentences in Aksara Jawa using pairs.

Class VI

3. Be able to read and understand non-literary texts, read Aksara Jawa, and appreciate macapat songs.

3.2 Read sentences in Javanese that use pairs.

4. Able to write essays in certain languages and write Aksara Jawa.

4.2 Write sentences in Javanese using pairs.

In learning to read and write Aksara Jawa. The teacher teaches reading the Aksara Jawa along with the Latin letters which are usually written underneath. In this activity, students are expected to have knowledge of the Aksara Jawa and its shape in their minds. Reading the Aksara Jawa includes three components, including: (1) an introduction to the Aksara Jawa and punctuation marks; (2) correlation of characters and punctuation with formal linguistic elements; and (3) a further relationship from A to B with meaning.[6]

In reading activities, students will certainly get knowledge about the writing they read. states that there are three basic reading processes, namely recording, decoding, and meaning.[7] Recording refers to words and sentences, then associated with sounds according to the writing used. Decoding or encoding refers to the process of translating graphic sequences into words, and meaning refers to the process of understanding meaning. From the results of reading the Aksara Jawa, students will have an insight into their knowledge of the Aksara Jawa.

The Aksara Jawa consists of 20 basic letters that have not been attached with sandhangan or what is called Nglegena or Dhenta Wyanjana.[8] The basic letters have 20 pairs which function to follow the consonants in each word such as the words tangent, thutuk, except for words that end with the letters h, r, ng or are called wignyan, layar, lizard like the words mabur, padang, saguh.[9] In the Aksara Jawa there is also the Murda script, which is the script used to write titles, names of people, names of geography, and names of institutions. Kurnia & Nugroho said that there are swara characters (front vowels), five partner and partner characters, several sandhangan to arrange vowels, several special letters, and writing marks. Not all Aksara Jawas, which consist of several types, are given to elementary school students in full, especially the Murda scripts, Swara scripts, and Peer scripts. This is because learning to read and write letters is taught starting from the simple things first so that children understand more quickly.[10]

According to Isnandani, students are said to be skilled at writing Aksara Jawa well if students can write Aksara Jawa correctly, pay attention to the sound of the Aksara Jawa, the exact twists and turns, writing in bare lines, the exact number of

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[6] Henry Guntur Tarigan, *Reading as a Skill* (London: Space, 2008).

[7] Farida Rahim, *Teaching Reading in Elementary Schools* (Jakarta: Earth Script, 2005).

[8] Warih Jatirahayu, *Manca Warta Kawruh Pepak Basa Jawa* (Yogyakarta: Beautiful Graphics, 2005).

[9] YF Avianto and TAS Prasida, "Aksara Jawa Learning for Elementary School Students Using Board Game Media," *Aksara* (2018): 133–148.

[10] ED Kurnia and YE Nugroho, "Training on Making Aksara Jawa Learning Media for High School Javanese Language Teachers in Rembang District," *Journal of Community Service* (2017): 101–112.

legs and the short length of the legs, and not there is a scratch. Based on this, the activity of writing Aksara Jawa must be carried out repeatedly by doing regular writing exercises.[11]

Based on the SK-KD above, it can be said that the activity of reading the Aksara Jawa is closely related to the activity of writing the Aksara Jawa. After carrying out activities to read the Aksara Jawa, then to test students' understanding, writing exercises were carried out. Write Aksara Jawa using certain techniques. How to write Aksara Jawa, namely the basic letters (legena) from left to right and hanging below the lines in the lined book. It's different again, the partner and sandhangan are written below and some are parallel to the base letters. In addition, the writing of one letter to another is combined/connected even between words in one sentence. For more details, it can be seen in the table of the Aksara Jawa below based on the Guidelines for Writing Aksara Jawa.[12]
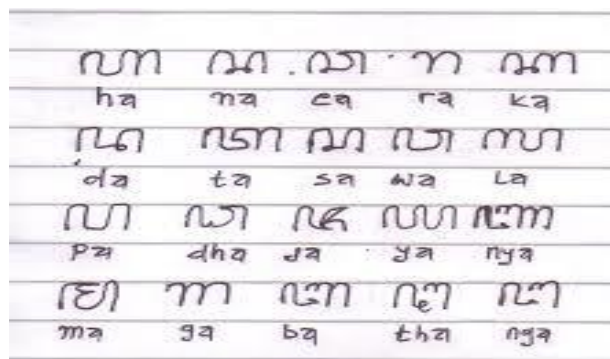

Figure 1. Nglegena Aksara Jawa

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[11] Isnandani et al., "Improvement of Aksara Jawa Writing Skills Using Smart Card Media," *PGSD FKIP Eleven March University* (2013).

[12] B. Elizabeth Hurlock, *Developmental Psychology* (Jakarta: Erlangga, 2002).

Figure 2. Couple Character

Nama Sandhangan	Aksara Jawa	Keterangan
Wulu	o	tanda vokal i
Suku	U	tanda vokal u
Taling	ꦌ	tanda vokal é
Pepet	ꦼ	tanda vokal e
Taling Tarung	ꦴ 2	tanda vokal o
Layar	╱	tanda ganti konsonan r
Wignyan	꧀	tanda ganti konsonan h
Cecak	ˑ	tanda ganti konsonan ng
Pangkon	꧀	tanda penghilang vokal
Péngkal	꧀	tanda ganti konsonan ya
Cakra	꧀	tanda ganti konsonan ra
Cakra keret	꧀	tanda ganti konsonan re

Figure 3. Sandhangan and Panyigeg

Example of writing Aksara Jawa

1. Montor mabur :
2. Mangan bakso :
3. Anak pitik :
4. Omah semut :
5. Kandhang ula :

There are many learning media that can be used to convey Aksara Jawa teaching materials. Computer-based media is one of the media that can be used to teach Aksara Jawa reading and writing. Teachers can use these media tools as media variations in conveying Aksara Jawa teaching materials. This computer-based media is a physical tool used to convey the contents of teaching material.[13] In learning to read and write letters, this computer-based media can be done by means of visual delivery and packaged in a game. In this regard, it can be said that media with learning methods are two aspects that cannot be separated

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[13] Azhar Arshad, *Revised Edition Learning Media* (Jakarta: PT RajaGrafindo Persada, 2014).

Learning to Read and Write Aksara Jawa Based on Computer Visual Media

Computer-based learning media as learning media is an important element in teaching and learning activities that can contain more material, can involve two or more objects such as images, text, sound, video, photos, and are able to interact with users when packaged more attractively.[14] Teachers can use computer-based media to convey teaching materials so that they are more interesting and can attract students' attention. The projected silent visual media can be in the form of opaque (opaque) projections, overhead projections, slides, filmstrips.[15]

The use of projected slides can be used in teaching students to read Aksara Jawa, namely by projecting the Aksara Jawa from the Hanacaraka software in front of the class. In this case, the text displayed can be adjusted in shape, color, and font size. This of course makes students feel clearer when carrying out listening and reading Aksara Jawa activities that are presented. This computer-based visual media is media whose form is in the form of images and can be seen.[16] The teacher displays several Javanese characters in front of the class, spells them out and the students follow suit. The process of this activity as a form of activity to train students to read. In this activity, students will receive a visual form of information that they can capture with the sense of sight (eyes) or can be called recording.

The use of computer-based media is very important that this media is used based on the characteristics of the material and the conditions and needs of the school. The device used is the LCD projector. This tool serves to convey messages / material to students by displaying an illustration. Media is indeed a form of modern technological development. The hope of improving the quality of learning is the goal of using media in learning.

Rusman says that to improve the quality of learning, computers are used in two kinds of applications, namely: (1) application in the form of computer-assisted learning (Computer Assisted Instruction-CAI), (2) application of computers in computer-based learning (Computer Based Instruction) -CBI). The two media applications are used to assist teachers in the learning process such as multimedia, presentation aids, and demonstrations or as aids in the learning process.[17]

Basically, the use of computer-based media is used in both theoretical and practical learning. Computer-based learning is a learning program created in a

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[14] R Saputra, S Thalia, and T Gustiningsi, "Development of Computer-Based Learning Media with Adobe Flash Pro CS6 on Broad Flat Material," *Journal of Mathematics Education* 14, no. 1 (2020): 67–80.

[15] OA Kii and E Dewa, "Phet Simulation as a Computer-Based Learning Media in the Team Games Tournament Learning Model to Increase Student Physics Learning Activities and Outcomes," *Journal of Educational Technology and Innovation Research (JARTIKA)* 3, no. 2 (2020): 360–367.

[16] Arshad, *Revised Edition Learning Media*.

[17] Rusman, *Learning Models* (Jakarta: PT Raja Grafindo Persada, 2010).

computer system and the subject matter has been programmed directly to the user (Setyawan, 2019)[18]. In this regard, the learning presented has been packaged in a software that contains information, concepts, practice questions to achieve the stated learning objectives.

Good media has several criteria including: (a) suitability or relevance, meaning that learning media must be in accordance with learning needs and tools in learning planning, as well as the characteristics of students; (b) convenience, meaning that the teaching materials delivered can be understood and learned by students, (c) attractiveness, meaning that learning media must be able to attract and stimulate the attention of students; (d) usefulness, meaning that the media provides benefits for delivering teaching materials to students.[19]

Based on the description above, the media has an important role in implementing the teaching and learning process, primarily to convey information or learning materials from teachers to students. In addition, the use of learning media by teachers shows that a teacher must be creative and innovative. Of course, this must pay attention to the variation/diversity of the media used. Teachers must have the skills to use and choose learning media that are appropriate to learning materials, the characteristics of students, and in accordance with the situation and conditions of the school.

Puzzle Game Methods in Learning to Read and Write Aksara Jawa

In the learning process, the teacher has an obligation to be able to guide, improve and direct children's attention. Students must be motivated so that students want to learn happily and the results of learning objectives are achieved. Likewise in learning to write and read Aksara Jawa, one must have special skills and repeated practice is needed. Student motivation is greatly influenced by the way teachers teach. Purwanto says that motivation is a conscious effort to influence a person's behavior so that he is moved to act to do something so as to achieve a certain result or goal. Motivation to write and read Aksara Jawa must be owned by students because motivation will make students not lazy / not bored doing repeated exercises.[20]

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[18] BW Setyawan, "). Javanese Culture-Based Learning Methods for the Success of Multicultural Education in the Era of the Industrial Revolution 4.0," *JPK (Journal of Pancasila and Citizenship)* 4, no. 3 (2019): 1–12.

[19] A Johar, E Risdianto, and DAF Indriyati, "Design and Implementation of Web-Based Learning Media in the Field of English Studies in Class VII of SMP Negeri 1 Bengkulu City Using Php and Mysql," *Journal of Informatics* 2, no. 1 (2014).

[20] Purwanto and Ngalim M, *Educational Psychology* (Bandung: Youth Work, 1990).

Learning media can improve and direct students' attention so that it can lead to learning motivation.[21] Media is part of the learning method used by teachers to achieve learning objectives. The development of technology and information shows rapid development, especially in the world of education. According to Kartikasari & Nugroho, in the world of education a learning method can be presented by using technology-based learning aids in an effort to facilitate the teaching-learning process to solve learning problems. Implementation of learning with creative and innovative learning methods, one of which is the use of media can certainly stimulate students to carry out learning with high demand/motivation.[22]

According to Narsa, the learning method used is one of the determinants of the success of the educational process to achieve learning goals.[23] It is further said that the learning method is effective in one situation, but not necessarily effective in dealing with other situations. Therefore, teachers are required to use a variety of learning methods. In essence, the game method can support student learning. This is of course adapted to the condition of students in elementary schools who tend to like to play. Regarding the world of play, basically children like to play.

Playing is an activity that cannot be separated from children. Besides being a necessity, play adds to or enriches the child's experience. Hurlock says that playing is an activity carried out by a child that causes feelings of pleasure. Educational games are games that have educational elements that are part of the game itself.[24] Educational games stimulate the cognitive, psychomotor, and affective domains. In learning to read and write Aksara Jawa, an interesting game method is needed and requires students to be active in participating in learning. Passive play is an activity carried out by a person in order to obtain pleasure and satisfaction which is carried out by someone in order to obtain pleasure, satisfaction, and entertainment such as reading, seeing picture stories, and watching television.[25] Playing puzzles involving computer-based visual media involves passive activities, namely watching slides.

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[21] Arshad, *Revised Edition Learning Media*.

[22] D Kartikasari and GK Nugroho, "Interactive Learning Media for Javanese Language Subjects Subject of Aksara Jawa at Public Junior High School 2 Tawangsari, Sukoharjo Regency," *Speed-Sentra Engineering and Education Research* 2, no. 3 (2012).

[23] IK Narsa, "Improving Indonesian Language Learning Outcomes in Fantasy Story Text Writing Material Through the Application of Problem Based Learning Learning Models," *Journal of Education Action Research* 5, no. 2 (2021): 165–170.

[24] Hurlock, *Developmental Psychology*.

[25] Narsa, "Improving Indonesian Language Learning Outcomes in Fantasy Story Text Writing Material Through the Application of Problem Based Learning Learning Models."

Playing puzzles is done by the teacher with students to practice reading and writing Aksara Jawa. This game method can be done with the help of software called hanacaraka which is installed into the Microsoft Word program. If in Ningsih's research uses the puzzle game method using cards containing a list of puzzles, then in this paper using computer-based visual media.[26]

At first the teacher displayed the complete Aksara Jawa in front of the class, the students paid attention. The teacher reads, students spell by looking at pictures of the Aksara Jawa. Thus, after receiving several exercises, students will have an introduction and understanding of the Aksara Jawa. The teacher tests students' understanding by showing the Aksara Jawa again on the slide but not using the Latin script. The teacher gives the opportunity for students to guess the Aksara Jawa. Students who can guess correctly will get points. This is of course a motivation or stimulus for children to participate in the teaching and learning process. Students have a challenge to be able to guess the name of the Aksara Jawa that is shown.

In addition, the teacher can package a puzzle game by giving a question in Latin script which is displayed with a slide, then students answer it in Aksara Jawa. Students who can answer of course get points for their activity. Thus, the activity and motivation of students is stimulated to be able to participate in learning with enthusiasm. This is also because students feel they have a challenge to answer each puzzle given by the teacher. Students have healthy competition with their friends. In the end, values in character education can be raised and implemented in learning activities.

Aksara Jawa writing activities can be taught by the teacher from the visual media used. The teacher displays the writing of the Aksara Jawa and the way of writing, namely hanging the lines, and the location of the writing of the Aksara Jawa. In this case, the teacher becomes a leader for students in front of the class. The teacher writes Aksara Jawa on the blackboard, students follow it in their respective books. This activity stimulates student activity individually to optimize study time properly. Students will take part in learning by practicing and exerting their energy and thoughts to do what the teacher wants, namely practicing writing Aksara Jawa. In connection with the description above, this game method includes the cognitive domain, namely understanding the Aksara Jawa, psychomotor, namely the students' skills in writing Aksara Jawa,

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[26] Ningsih and Syahrul, "Improving Speaking Skills Through the Puzzle Playing Method for Class X MAS-TI Tabek Gadang, Fifty Cities District. Language, Literature, and Learning,."

CONCLUSION

Based on the results of a study of the puzzle game method in learning to read and write Aksara Jawa with computer-based visual media, several conclusions were obtained, including: that teachers must have creative and innovative methods in learning to foster student motivation in participating in learning, especially reading and writing. Writing Aksara Jawa requires regular practice. By packaging learning methods using the game method, one of which is done with the puzzle method, student motivation will increase. Thus the goal of learning to read and write the Aksara Jawa will be achieved, namely students can read and write the Aksara Jawa, and of course this will have an impact on the preservation of Javanese culture, one of which is in the form of the Aksara Jawa.

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