



The International Journal of Mathematics and Sciences Education

Publication details, including instructions for authors and subscription information:
<https://nakiscience.com/index.php/IJMSEd>



The International Journal of
Mathematics and Sciences Education

Editor-in-Chief: Prof. Ebenezer Bonyah



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To cite this article: Iskandar, D., Hidayat, S., Jamaludin, U., Leksono, S.M. (2023). Javanese script digitalization and its utilization as learning media: an etnopedagogical approach. *The International Journal of Mathematics and Sciences Education*, 1(1), 21-30.

To link to this article: <https://nakiscience.com/index.php/IJMSEd>

Javanese script digitalization and its utilization as learning media: an ethnopedagogical approach

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Abstract

The purpose of this research is to analyze the digitization of the Javanese script and its use as a learning medium with an ethnopedagogical approach. Ethnopedagogy is a learning approach that integrates culture and local values in the learning process. The research method used in this study is a literature review. The results of the research show that digitizing the Javanese script can help strengthen and maintain the existence of local culture, one of which is by learning the Javanese script. In addition, learning Javanese script can help develop students' creativity and abilities in art and literature. Utilization of technology and digital media can increase the effectiveness of learning Javanese script, such as making applications or computer programs that can make it easier for students to learn Javanese script. By utilizing digital media, students can learn Javanese script in a more interactive and interesting way. An ethnopedagogical approach to learning Javanese script can also help strengthen a sense of pride in local culture and maintain cultural heritage for future generations.

Keywords: Javanese Script Digitalization, Learning Media, Ethnopedagogical Approach

1. Introduction

Globalization can have an impact on the loss or marginalization of local culture. Therefore, it is important to strengthen and maintain the existence of local culture so that it does not disappear (Rochmah et al., 2021). One way to maintain local culture is to learn the Javanese script. The Javanese script is a part of Indonesia's unique cultural wealth and needs to be preserved. By studying the Javanese script, students can understand the rich values and traditions of Javanese culture. In addition, studying Javanese script can also help develop students' creativity and abilities in art and literature. The Javanese script has a beautiful and complex shape, so learning it can help improve students' artistic and aesthetic abilities. Through the introduction and understanding of the Javanese script, students can also strengthen their sense of pride in local culture and maintain cultural heritage for future generations.

The Javanese script, or Hanacaraka/Carakan, is one of Indonesia's traditional scripts. The Javanese script was used by Javanese people, especially in places such as Yogyakarta and Solo, to develop a tradition of writing Javanese. Hanacaraka is generally used to write scripts such as stories (fiber), historical records (babad), ancient songs (kakawin), or predictions (primbon). The Javanese script is still related to the Balinese script, both of which are developments from the Kawi script. The Javanese script has its own characteristics compared to other scripts, although it has some similarities with other scripts from the same lineage. Since the introduction of the Latin script by the Dutch in the 19th century, the Javanese script

was slowly replaced by the Latin script. Much of what is currently written in Java has been abandoned (Susanto et al., 2022).

The Javanese script has been preserved and can still be found today in several areas on the island of Java. One way to preserve this cultural heritage is to incorporate Javanese script lessons into the local content curriculum at schools. Javanese script is also found in street names in several cities in Indonesia, for example, in Yogyakarta. In 2009, the official Javanese script was added to Unicode version 5.2. There are also several applications that help change letters from Latin to Javanese, such as the android application “Writing Javanese Script” and the Javanese Alphabet Translator on the website www.sastra.org. Several studies on Javanese pattern recognition have been carried out and are still under development (Rojikin, 2023).

The Javanese script needs digitization to facilitate access and use by the wider community, especially the younger generation who do not understand and know the Javanese script. Digitization is the process of converting analog information or data into digital or binary format. In digitization, data or information is converted into a series of 0's and 1's, which can be processed and stored in a computer or other digital device (Pradana & Pratama, 2022). Digitalization can enable access and processing of data more easily, efficiently, and accurately. In addition, digitization can also enable the sharing of information more quickly and effectively and save storage space. An example of digitization is the conversion of documents or images that were originally paper or physical into digital formats, such as PDF or JPG (Sufyan & Ghofur, 2022). In addition, digitization can also be in the form of transformation from physical products or services into digital products or services, such as music or video streaming services that can be accessed via the internet (Widayati et al. 2021).

Digitalization has had a significant impact on various sectors, including business, government, education, and others (Wulandari et al., 2021). Digitalization is also one of the main trends in the world of technology and can bring many benefits if it is implemented properly and effectively (Pheeney & Kartadinata, 2016; Sugara & Sugito, 2022). Digitalization in learning media can provide many benefits for students and teachers. With digitalization, students can be more actively involved in the learning process because they can interact directly with the learning material presented (Anita, 2022). This can increase interest in learning and student involvement in the learning process. With digitization, we can use various types of media, such as audio, video, animation, and images, which are more interesting and easy for students to understand (Hasriadi, 2022). This can help enrich the variety of learning media that can be used by teachers. Digitalization allows students to access learning materials anytime and anywhere, according to their needs. This can help students to learn independently and facilitate the learning process outside the classroom. Digitization provides fast and accurate feedback. In digitization, teachers can provide feedback quickly and accurately on assignments or exercises done by students. This can help students to correct their mistakes quickly and speed up the learning process. Digitization makes it easy to store and manage data. With digitization, all data and information related to learning can be stored and managed easily and efficiently.

Digitalization in learning media can be an important innovation to improve the quality of learning. In this case, it is necessary to continuously evaluate and improve so that digitalization can provide maximum benefits for students and teachers. Digitizing the Javanese script can help preserve the rich Javanese culture and be a solution to overcome the problem of decreasing interest in learning Javanese script. Digitizing the Javanese script can be done in various ways, such as making learning applications, e-books, video tutorials, or podcasts. With digitization, Javanese script can be more easily accessed and understood by the younger generation, who are more used to digital technology. Digitizing the Javanese script can help develop a creative economy in the field of design and graphic arts (Aribowo, 2018).

Digitizing the Javanese script and using it as a learning medium can be an effective ethnopedagogical approach to increasing students' understanding and appreciation of local culture. The following are some things that can be done in utilizing the digitalization of the Javanese script as a learning medium with an ethnopedagogical approach:

- a) Make a Javanese script learning application. This application can be designed to help students learn Javanese script in an interactive and fun way. This application can contain Javanese script learning materials consisting of videos, images, and text. In making this application, it is necessary to pay attention to the design and content of the material that is interesting, easy to understand, and in accordance with the characteristics of students.
- b) Integrating Javanese script in the learning curriculum. In this case, the Javanese script can be integrated into several subjects, such as Indonesian, history, art, and local culture. In this way, students will more easily understand Javanese script and can enrich their knowledge of local culture.
- c) Holding a Javanese script learning competition. In this case, students can hold a competition to make the best Javanese writing or calligraphy. This can motivate students to learn more about Javanese script and local culture.
- d) Holding Javanese script learning activities outside the classroom. In this case, students can be invited to visit museums, historical sites, or important places related to Javanese script and local culture. Students can also be invited to take part in learning activities related to Javanese scripts and local cultures, such as workshops, seminars, or exhibitions.

By utilizing the digitization of the Javanese script as a learning medium with an ethnopedagogical approach, it is hoped that students will more easily understand, and appreciate the local culture. In addition, with a better understanding and appreciation of local culture, it is hoped that students will be more open to cultural diversity and can help maintain and develop local culture for future generations.

Research on the use of digitizing Javanese script has been carried out by (Aribowo, 2018), which explained that the implementation of the activity was carried out in the form of demonstrations, the practice of installing Hanacaraka letters, typing Javanese script, and using computer devices to make learning media. The format of the event is designed with a training strategy so that participants have a good mastery of writing skills and producing Javanese script learning media on computers. The review and evaluation of the implementation of activities show that

the material taught is relatively easy to put into practice. Increasing teacher skills in digitizing Javanese script can be demonstrated by the ability to use computer equipment to produce Javanese script learning media (Galeeva et al., 2021). Basically, most of the participants agreed that the material presented had great potential and could be applied in the learning process in their respective schools. This research only analyzes the implementation of digitization of the Javanese script and its use as a learning medium. Even though the use of Javanese script can be used to preserve cultures that have not been studied. Therefore research on the digitization of the Javanese script and its use as a learning medium with an ethnopedagogical approach needs to be carried out.

Digitizing the Javanese script can maintain a Javanese cultural identity that should be preserved and passed on to the next generation. Javanese script is part of the cultural heritage that should be preserved and passed on to the next generation. Digitizing the Javanese script can be a means to increase public awareness and love for Javanese culture, as well as encourage efforts to preserve culture and cultural heritage in Indonesia (Susanto et al., 2022). Therefore, digitizing the Javanese script is very important to maintain the continuity and sustainability of Javanese culture and traditions in the future. Digitizing the Javanese script can be an effort to preserve Javanese culture and traditions. With digitization, the Javanese script can be more easily accessed by the wider community, especially the younger generation who do not understand and are familiar with the Javanese script. Digitizing the Javanese script can be done in various ways, such as making learning applications, e-books, video tutorials, or podcasts. These materials can be adapted to the needs and interests of the community so as to attract interest in learning and enrich their knowledge.

2. Methods

The research design is Literature Review or literature review. A literature review is a description of theories, findings, and other research materials obtained from reference sources as the basis for research activities. A literature review contains reviews, summaries, and the author's point of view from various sources (articles, books, slides, internet information, etc.) on the topic being discussed. The method of searching articles in research journal databases and searching the internet. The database search used was Google Scholar from 2019 to 2023. For article searches, the keywords used were also included in the data collection: digitization of Javanese script, cultural digitization, digitization of local wisdom, and digitalization of culture in ethnopedagogical studies. This literature review was synthesized using a narrative approach, grouping similar extracted data according to the results measured to answer the research objectives. Research journals that meet the inclusion criteria are then collected, and a summary of the journal is produced, including the name of the researcher, year of publication of the journal, country of study, the title of study, methods and results, or summary of findings. The journal is then summarized by analyzing the purpose of the research and what is included in the findings/findings.

The analysis used was an analysis of the contents of the journal followed by coding the contents of the journal using the psychospiritual category. The data

collected is then looked for similarities and differences, then discussed to draw conclusions. Based on the inclusion criteria, there is 1 article that has similarities with the author's research title, and there are 20 articles whose study is on cultural digitalization. Research journals that meet the inclusion criteria are then collected, and a summary of the journal is produced, including the name of the researcher, year of publication of the journal, country of study, the title of study, methods and results, or summary of findings. The journal is then summarized by analyzing the purpose of the research and what is included in the findings/findings. The analysis used was an analysis of the contents of the journal followed by coding the contents of the journal using the psychospiritual category. The data collected is then looked for similarities and differences, then discussed to draw conclusions. Based on the inclusion criteria, there is 1 article that has similarities with the author's research title, and there are 20 articles whose study is on cultural digitalization. Research journals that meet the inclusion criteria are then collected, and a summary of the journal is produced, including the name of the researcher, year of publication of the journal, country of study, the title of study, methods and results, or summary of findings. The journal is then summarized by analyzing the purpose of the research and what is included in the findings/findings. The analysis used was an analysis of the contents of the journal followed by coding the contents of the journal using the psychospiritual category.

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3. Results and Discussion

Implementation of Javanese Script Digitization

Learning applications specifically designed to learn Javanese script can be created and accessed via electronic devices such as smartphones, tablets, and laptops. This application can be equipped with interactive features such as writing and reading Javanese script exercises, as well as explanations about the history and culture of the Javanese script (Rojikin, 2023; Susanto et al., 2022). The media is one of the intermediaries for the teacher to convey knowledge/material to students. Learning media can be used to assist the teaching and learning process with the aim of conveying information from the teacher to students. Learning applications can help teachers improve learning effectiveness by providing interesting and interactive learning content. In learning applications, students can learn through gamification or simulation, which helps increase student interest and motivation to learn. Learning applications can help students access learning materials from anywhere and at any time without having to be present in a physical class. This allows students who are in remote areas or who do not have access to schools to keep studying.

Learning applications can provide instant feedback on student learning outcomes. This helps the teacher to know the extent of students' understanding of the learning material, so they can take corrective action if necessary. Learning applications can help teachers save time in preparing and delivering learning materials. In learning applications, teachers can prepare learning materials and exercises more easily and quickly, and students can study independently without having to wait for teacher guidance. Learning media such as videos, animations, and games can be used to introduce Javanese script to students. In videos or animations, the Javanese script can be displayed in an attractive visual way so that students become more interested in learning it (Choiro et al., 2023).

The use of digital-based learning media is a form of digitization in learning that can provide benefits to the learning process. Digital-based learning media can enrich students' learning experiences by utilizing interactive features such as videos, animations, and games. This can help increase students' interest and motivation to learn so that the learning process becomes more enjoyable. Digital-based learning media can be accessed from anywhere and anytime, as long as there is an internet connection and a device that can be used (Trisiana, 2021; Widayati et al., 2021). This allows students to learn outside the classroom and helps reduce limitations in access to learning resources. Digital-based learning media can be used as a means for learning in groups, where students can interact online and carry out virtual discussions. This can help students learn collaboratively even though they are not in the same room. In its implementation, digital-based learning media can be used as a complement or even a substitute for conventional learning materials, depending

on the needs and conditions of each school or educational institution. Therefore, the use of digital-based learning media can provide convenience in the learning process and help improve the quality of education.

Learning materials such as electronic books and online modules can be provided to make it easier for students to learn Javanese script. This material can contain explanations about letters, how to write, and the use of Javanese script in everyday life. Teachers can be given training on digitizing Javanese scripts so they can teach students using the right technology. This training can be in the form of workshops or online training that discusses the use of digital-based learning applications and learning media. Collaboration with the Javanese script community can assist in the development and use of technology to introduce Javanese script to students. The Javanese script community can provide input regarding the design of applications or learning materials, as well as assist in the development and deployment of these technologies (Santosa et al., 2021). By digitizing the Javanese script, it is hoped that students will find it easier and more interesting to learn the Javanese script so that they can preserve the culture and traditions of the Indonesian people.

Utilization of Javanese Script Digitization as Learning Media

Digitizing the Javanese script as a learning medium can bring several benefits. In the digital era, the use of technology can help increase student interest in learning. Through the digitization of the Javanese script, students can learn the Javanese script in a more interesting and interactive way, such as through applications, animated videos, or games (Aribowo, 2018). Digitizing the Javanese script can make it easier for students to access learning materials anytime and anywhere. This can help overcome limited access to teach resources and help students who do not have time to attend in-person lessons. In using the digitization of the Javanese script, teachers can save time in preparing and delivering learning materials. In digitizing the Javanese script, teachers can prepare learning materials more easily and quickly, and students can learn independently without having to wait for teacher guidance (Batarius et al., 2021).

Digitizing the Javanese script can also help students develop digital skills such as the use of electronic devices, applications, and the internet, which are very useful for student's futures. By using the digitization of the Javanese script, students are not limited to learning in the classroom but can learn the Javanese script from anywhere and at any time. This helps broaden the range of learning and allows students from outside the area to learn Javanese script. In its implementation, digitizing the Javanese script as a learning medium can be done through various platforms, such as learning applications, websites, or social media. In addition, digitizing the Javanese script can also be combined with conventional learning in the classroom to strengthen students' understanding of the Javanese script (Hidayat et al., 2020; Zafi, 2017).

Digitization of Javanese Script in Ethnopedagogic Studies

Digitizing the Javanese script can also help develop a creative economy in the field of design and graphic arts. Designs based on Javanese script can be used in various products, such as t-shirts, bags, or other merchandise, so as to increase product sales value and support the local economy. Apart from being a means of

learning and a creative economy, digitizing Javanese script can also maintain a rich Javanese cultural identity. Javanese script is part of the cultural heritage that should be preserved and passed on to the next generation. With digitization, the Javanese script can be more easily accessed and understood by the younger generation, who are less exposed to Javanese culture (Mulyana et al., 2021; Santosa et al., 2021).

Digitizing the Javanese script can be a means to increase public awareness and love for Javanese culture, as well as encourage efforts to preserve culture and cultural heritage in Indonesia. Digitizing Javanese script in ethnopedagogic studies can be a very effective means of preserving Javanese culture and introducing Javanese script to the younger generation. An ethnopedagogic approach to digitizing Javanese script can emphasize the context of Javanese culture and traditions related to Javanese script (Galeeva et al., 2021; Rochmah et al., 2021).

An interactive and participatory Javanese script learning application can make it easier for students to understand and learn the Javanese script. In this application, students can be directly involved in the teaching and learning process and gain direct experience in using the Javanese script in everyday life. Digitizing the Javanese script, the Javanese cultural community can be involved as a source of knowledge and a deeper understanding of the Javanese script and the cultural values contained therein. This can help reinforce cultural values and enrich students' understanding of the Javanese script (Aribowo, 2018; Mulyana et al., 2021; Widiyono et al., 2022).

The digitization of the Javanese script must pay attention to the context of Javanese culture and traditions. In this case, the application of learning the Javanese script must pay attention to the cultural values contained in the Javanese script, such as local wisdom, values, and traditions. The digitization of the Javanese script can be adapted to the multicultural context that exists in society. In this case, the application of learning the Javanese script can be adapted to other cultural values that exist in society so as to strengthen intercultural tolerance and harmony. With the application of ethnopedagogic to the digitization of the Javanese script, it is hoped that the application of learning the Javanese script can be more easily understood by students and the general public and can become an effective means of introducing and preserving the Javanese script as part of Indonesia's cultural heritage (Choiro et al., 2023; Mulyana et al., 2021)

4. Conclusion

Digitizing the Javanese script can be an important step in preserving culture and strengthening national identity. In addition, digitization of the Javanese script can also be used as a learning medium through an ethnopedagogical approach. Digital-based learning applications can be made to help students learn Javanese script interactively. Learning materials about the Javanese script can be provided in various formats, such as e-books, video tutorials, or podcasts. The Javanese cultural community can be involved in the process of digitizing Javanese script. They can assist in developing applications, creating learning materials, and providing input to improve the quality of learning. Through an ethnopedagogical approach, digitalization of the Javanese script can be integrated with the educational curriculum so as to help students understand local cultural values and strengthen

national identity. Ethnopedagogic Javanese script is a learning approach that refers to the way of learning and teaching Javanese script based on the context of Javanese culture and traditions. This approach aims to strengthen cultural identity and maintain the rich cultural heritage of Java.

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