

E-BOOK OF EXTENDED ABSTRACT

THE 14TH INTERNATIONAL INVENTION, INNOVATION & DESIGN COMPETITION 2025



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DESIGN COMPETITION 2025

Organized by:

Office of Research, Industry,
Community & Alumni Network
UiTM Perak Branch

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Perpustakaan Negara Malaysia

Cataloguing in Publication Data

No e- ISBN: 978-967-2776-52-9

Cover Design: Dr. Mohd Khairulnizam Ramlie

Typesetting : Georgia

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ABSTRACT

In response to the low awareness of *Aksara Jawa*, this project explores the development of an educational product for young learners through an interactive and culturally grounded experience. Each stage, including empathize, define, ideate, prototype, and test, was carried out with a user-centered design, focusing on how children learn and connect to cultural elements. Inspired by the legend of Aji Saka, the puzzle combines symbolic shapes, abstract visuals, and storytelling to spark curiosity, emotional engagement, and cognitive growth. *Aksa Kata*, the resulting product, aims to be a promising tool for early cultural education and holds potential for further development in a broader context. The traditional *Hanacaraka* syllabary is embedded into the design implementation through modular puzzle pieces that represent each line of the script. Findings from interviews show that the puzzle significantly improved children's interest and retention of the Javanese script, *Aksara Jawa*. Children demonstrated stronger syllable recognition and a deeper emotional connection to cultural values. This research highlights the power of integrating storytelling and thoughtful design in educational tools that can effectively address cultural knowledge gaps in early education.

Keyword: Javanese script, Aji Saka, educational toy, cultural design, storytelling.

1. INTRODUCTION

Amidst the processes of modernization and digitalization, the Javanese script, known as *Aksara Jawa*, is progressively being overlooked as a significant aspect of cultural heritage. This classical script, known as *Hanacaraka*, originates from Java, Indonesia, and is utilized for writing the Javanese language. The Javanese script, often found in manuscripts and important texts, has a visually artistic form used in calligraphy, design, *batik*, and architecture. Its beauty inspires creativity and reinforces cultural identity, helping people connect with their roots and take pride in their heritage. This script is now rarely used and is at risk of disappearing. While it continues to be part of the educational curriculum, the approach to learning it often lacks depth and significant engagement. To address the issue of preservation, this study presents an educational product in the form of a wooden puzzle designed for elementary children. Inspired by the legend of Aji Saka and his aides Dora and Sembada, the puzzle helps children learn the Javanese alphabet in an engaging and memorable way through storytelling, symbolic color schemes, abstract shapes, and modular components. The design process follows a qualitative approach with design thinking, including cultural research, sketching, prototyping, and observing how users interact with the product. The puzzle is divided into four sets, each representing one line of the traditional Javanese script: Ha Na Ca Ra Ka, Da Ta Sa Wa La, Pa Dha Ja Ya Nya, and Ma Ga Ba Tha Nga. Rather than showing characters in a literal way, the puzzle communicates the deeper values of the script, such as loyalty, conflict, and peace. Aimed at young children, especially kindergarten students, the product also encourages the development of fine motor skills, color recognition, pattern identification, and spatial awareness. Through engaging with shapes and colors, children are introduced to the cultural meaning behind the script in a fun and meaningful way.

2. METHODOLOGY

This research uses the Design Thinking approach, which centers on creating creative solutions based on user needs. This approach is highly appropriate in the development of learning media such as Javanese script puzzles, because it prioritizes understanding users (children), exploration of ideas, and product trials.

2.1 Empathize

This stage is carried out to understand the needs and challenges experienced by children in learning Javanese characters. Data was collected through observation and informal interviews with children and learning assistants to explore what difficulties they experience, such as complex letter shapes, writing difficulties, or a lack of interest.

2.2 Define

Based on the observation results, the main problem focus was determined, namely, the lack of interesting and interactive learning media to learn Javanese characters. This problem is the basis for determining the direction of product development.

2.3 Ideate

At this stage, the process of brainstorming ideas was carried out to produce various alternative solutions, taking into account educational and game elements. The result is learning media concepts in the form of an interactive puzzle that brings together visual, kinesthetic, and cultural story elements.

2.4 Prototype

The initial prototype of the Javanese script puzzle was made in the form of a physical product made of wood that contains basic characters and pairs. The design is made simple but attractive, so that children can understand and play easily.

2.5 Test

The product was tested.

3. FINDINGS

User feedback reveals several significant insights. Research conducted during the user interview phase indicated that *Aksara Jawa* is primarily presented with minimal awareness and engagement. Many elementary students had little to no exposure to Javanese script before the activity. Traditional teaching methods did not effectively capture their interest or support retention. During the interview phase, the interviewer showcased the game implementation, which sparked significant curiosity and attachment among several children due to its visual representation. The interviewer received inquiries concerning the game's implementation and symbolism. The puzzle game encourages imagination and engagement through emotional and narrative meaning. Furthermore, this project gained a positive response from the academic teacher as an alternative way of learning. The teachers saw a feasible application of the game and its connection to the students, and its sustainability for the younger generations. Hence, this puzzle demonstrated a stronger potential and ability to recall *Aksara Jawa* syllables and legend as opposed to those who only received verbal instruction.

4. CONCLUSION

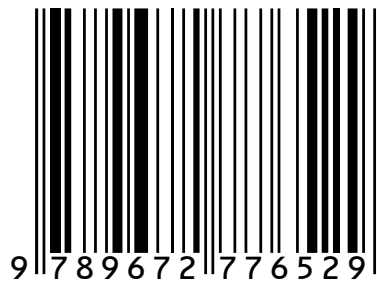
This research highlights the potential of integrating cultural heritage and educational play through the development of the *Aksa Kata* puzzle as a learning medium for Javanese script. By applying the Design Thinking approach, the product successfully addressed key challenges in traditional learning, such as low engagement and retention. The combination of symbolic visuals, storytelling inspired by the Aji Saka legend, and modular puzzle components proved effective in increasing children's curiosity, cultural awareness, and syllable recognition. The product not only functions as an educational tool but also as a medium to preserve and revitalize Aksara Jawa among younger generations. Positive feedback from both students and educators indicates that culturally-rooted design can offer meaningful, sustainable contributions to early education. This project opens opportunities for further development in expanding cultural learning tools using creative, hands-on strategies.

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