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ROBOJIM: Art-Based Research in the Preservation of Jawi Writing through the Design of Animated Character Toys

[1]* Mohd Zahir bin Zainal Abidin [2] Dr Edina Mohd Nasseri [3] Muhammad Ismawi bin Muhammad Ismail

[1] Centre for Postgraduate Studies, National Academy of Arts, Culture, and Heritage
zahir.p0010@st.aswara.edu.my

[2] Creative Arts Foundation Study Center, National Academy of Arts, Culture, and Heritage
zahir.p0010@st.aswara.edu.my

[3] Centre for Postgraduate Studies, National Academy of Arts, Culture, and Heritage
ismawi.ih@gmail.com

Corresponding Author

ABSTRACT

Jawi script was once widely used in the Malay Peninsula before being replaced by the Roman alphabet following the implementation of the National Language Act 1963/1967 (Lubis & Harun, 2020). Mastery of Jawi writing is decreasing, and it is feared that this writing will one day become extinct. One of the unique features of Jawi writing is the nature of its letters, which can merge and change shape depending on the position of the letters. This feature could also cause major confusion in learning it. The preservation of Jawi could be achieved if this Intangible Cultural Heritage (ICH) is not trapped in its conventional, static and two-dimensional structure. This practice-as-research project uses the Islamic Aesthetics philosophy to design characters based on Jawi, which then will be transformed into robotic toys with the toyetic element and Homo Luden (the culture of play) philosophy, using 3d printing technology. The resulting Jawi transformable robotic toys 'Robojim', offer an interactive experience that unites cultural heritage and marketable learning material targeted at children as our future heritage keeper. This study highlights how Jawi characters can be re imagined through culturally grounded art, design, and 3d modelling and how to preserve ICH in a fun, playful way within the creative industries.

Keywords: *Practice As Research; Jawi Script; Islamic Aesthetics; Toyetic; Homo Ludens; Robojim*

INTRODUCTION

Jawi script once stood as a central pillar of Malay identity, functioning as the primary medium for administration, education, literature, and cultural expression. However, its status declined significantly following the National Language Act 1963/67, which recognized the Roman alphabet as the official script of the Malay language. Today, although Malaysians are highly literate in the Roman script, many especially younger generations are increasingly detached from Jawi. Public errors, social-media

mockery, and controversies surrounding its teaching reveal gaps in both appreciation and understanding of this heritage script.

Within the creative arts sector, particularly animation and game design, Jawi remains confined to conventional, static 2D forms. Unlike international educational animations such as *WordWorld* or *Alphablocks*, which transform Roman letters into dynamic and interactive characters, no equivalent representation exists for Jawi. Its potential as a visual and narrative system has yet to be explored meaningfully.

The *Robojim* project emerges from this cultural and creative gap. It proposes re-imagining Jawi letters as transformable robotic characters, developed through 3D modeling, animation, and toyetic design. This approach aims to revitalize Jawi by embedding it into contemporary media familiar to children. More than a design exercise, the project aligns with UNESCO's objectives in safeguarding *Intangible Cultural Heritage* (ICH) through forms that are meaningful and engaging to future generations.

This research adopts an **Art-Based Research (ABR) / Practice as Research (PaR)** methodology, positioning artistic creation not merely as production but as a mode of inquiry. Through cycles of making, reflection, iteration, and interpretation, the research investigates how Jawi can be transformed into interactive characters and play experiences. Three theoretical pillars guide this methodology:

a) Islamic Aesthetic Philosophy

The morphological nature of Jawi; its shifting forms depending on letter connections, offers a rich visual language grounded in unity, rhythm, and balance. These principles inform the design of robotic characters whose transformations reflect the inherent fluidity and elegance of Jawi script.

b) Homo Ludens (the Playful Human)

Drawing from Johan Huizinga's theory of play, the research conceptualizes learning as an experiential activity shaped by imagination, interaction, and discovery. Designing *Robojim* as a playful, tactile, and interactive medium helps transform Jawi from passive script into a lived cultural experience for children.

c) Toyetic Principles and Contemporary Design Technologies

Incorporating toyetic elements ensures that characters are visually appealing, mechanically functional, and commercially viable as toys. **3D printing technology** enables rapid prototyping of transformable models, while **digital animation** visualizes the script-to-robot transformation as an educational narrative.

The methodological process includes:

- Analyzing letter structures and connection variations of Jawi,
- Sketching conceptual designs based on these forms,
- Modelling and rigging 3D prototypes,
- Constructing transformation mechanisms,
- Conducting early usability observations with children, and
- Reflective assessment to refine visual, mechanical, and educational elements.

The creative process thus becomes an analytical tool for rediscovering Jawi's formal and symbolic potential.

RESULTS AND DISCUSSION

The project is expected to generate meaningful outcomes across cultural preservation, creative industry innovation, and educational engagement.

a) Cultural Revitalization through Modern Media

By transforming Jawi letters into characters that move, shift, and interact, the project introduces a multi-sensory approach to learning. Children may develop deeper recognition, familiarity, and emotional connection to Jawi through physical play and animated storytelling.

b) New Visual Interpretations of Jawi

The research is likely to reveal how the script's natural variability and structural elegance can be translated into dynamic character design. Instead of a static 2D form, Jawi becomes a flexible visual system capable of inspiring modern creative expressions.

c) Contributions to Educational and Creative Industries

The project may produce several forms of impact:

- Educational animations centered on Jawi literacy,
- ommercially viable robot toys based on cultural heritage,
- Interactive learning tools that integrate cultural identity with tactile play.

These outcomes align with SDG 4 (Quality Education) by promoting creative, heritage-based learning, and SDG 11 (Sustainable Cities and Communities) by ensuring cultural heritage remains active in modern society.

d) A Model for Intangible Cultural Heritage (ICH) Preservation

If successful, *Robojim* could serve as a scalable model for revitalising other heritage scripts such as Kanji, Hanzi, or Tamil letters by merging cultural meaning with contemporary creative technologies.

e) Social and Cultural Implications

Presenting Jawi through neutral, playful, and secular media can reduce cultural tensions surrounding its usage. It positions Jawi as a shared national heritage rather than a religious symbol, encouraging broader appreciation across Malaysia's diverse communities.

CONCLUSION

Robojim proposes an innovative pathway to re-energize and preserve Jawi script through the convergence of artistic research, animation, 3D design, and toyetic principles. By applying a Practice-as-Research framework, the project reinterprets Jawi not merely as a written artefact but as a lively, transformable, and interactive system that resonates with children today.

This approach demonstrates that cultural heritage can thrive when re-imagined in formats that align with contemporary culture and technological practices. Through playful engagement, multi-sensory interaction, and imaginative storytelling, *Robojim* encourages children to form a meaningful connection with Jawi, thus helping ensure its continuity into the future.

Ultimately, the research reinforces the idea that heritage remains alive only when it evolves. By bridging tradition and innovation, *Robojim* offers a compelling model for sustaining cultural identity in a rapidly changing world, reaffirming Jawi as a dynamic, relevant, and proudly Malaysian cultural legacy.

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