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Research Article

Interactive Batik & HR Incubation for Art-Technopreneurship: Mantraman Village Pilot Project

Ike Ratnawati*, Abdul Rahman Prasetyo, Iriaji Iriaji, Alby Aruna, Eka Putri Surya

Malang State University, Malang

ORCID
Ike Ratnawati: https://orcid.org/0000-0001-6305-2842
Abdul Rahman Prasetyo: https://orcid.org/0000-0002-7769-2100
Iriaji Iriaji: https://orcid.org/0000-0002-8622-1423
Alby Aruna: https://orcid.org/0000-0001-8451-8330
Eka Putri Surya: https://orcid.org/0009-0000-5068-9780

Abstract.
The implementation of this activity presents an innovative approach to promote the sustainability of the Javanese batik industry by developing interactive batik designs and fostering human resources in the arts and technopreneurship fields. The research project undertaken in Mantraman Village, Pagelaran, aims to brand Mantraman Village as a unique destination embodying Javanese Cultural Village characteristics. The cutting-edge approach combines age-old batik techniques with the latest in digital augmented reality technology. By doing so, it aims to boost visitor engagement and offer a hands-on experience in the batik design process. This implementation also focuses on fostering human resources in the arts and technopreneurship fields. These educational activities are designed to impart both theoretical knowledge and practical skills, empowering individuals to venture into or further develop their own art-technopreneurial pursuits. Training programs and workshops are conducted to develop participants' skills and knowledge in batik design, business management, marketing, and related technological aspects. This implementation methodology involves conducting participatory surveys, observations, and interviews with relevant stakeholders, as well as testing and evaluating prototypes of interactive batik design systems. The data collected will be analyzed qualitatively and quantitatively to measure the project's impact on increasing public interest, improving the quality of batik products, and developing human resources in the arts and technopreneurship fields. The results of the implementation of this activity made a positive contribution through an inventory of interactive batik motif designs with augmented reality technology, contributing to the development of the batik industry in Mantraman Village, Pagelaran Village as an iconic tourism village branding. Through these efforts, the project contributes positively to the sustainable growth of the batik industry and cultural branding of the village.

Keywords: interactive; pattern; batik; mantraman village; pagelaran.

Corresponding Author: Ike Ratnawati; email: ike.ratnawati.fs@um.ac.id

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1. Introduction

Pagelaran pottery industrial village is an industrial area located in the geographical location of Malang Regency. However, amidst modernization and global competition, the village's batik industry faces the challenge of maintaining authenticity and relevance in an ever-evolving world [1]–[3]. Therefore, this pilot project aims to strengthen the identity of Mantraman village as a Javanese cultural village and promote batik as a highly valued cultural heritage with a philosophical value [4], [5].

One of the main focuses of this activity is the development of interactive batik designs. The use of technology can increase the attractiveness and selling value of batik. This not only increases user engagement and satisfaction, but also creates new opportunities in the marketing and sales of batik with the principle that batik motifs tell their own philosophy. In addition, this development also emphasizes the development of human resources in the field of batik art. Through human resource incubation, local communities will be involved in training, workshops and educational activities related to batik. They will be given knowledge and skills in the process of making batik, coloring techniques, and product marketing. Thus, the people of Mantraman will be prepared to become skilled and uniquely competitive entrepreneurs and batik craftsmen, ready to engage in the world of entrepreneurship and generate sustainable income [6].

2. Method

The Asset Based Community Development (ABCD) method is an approach that focuses on groups by utilizing resources and identifying those in the group. The approach assumes that each group has strengths and assets as the basis for positive change and growth. This method has stages (discovery) group assets, give rise to dreams (dream) and a shared vision of the future, designing (design) concrete activities based on assets discovered, defined (define) roles and responsibilities in implementing plans, and pursuing destiny (destiny) to achieve change and vision of change in the community. In full in the following chart:

2.1. Data Collection

This process collects data through interviews, questionnaires, and referrals. The types of data obtained are quantitative for practicality testing and number-based validation, and qualitative for needs analysis and expert validators.

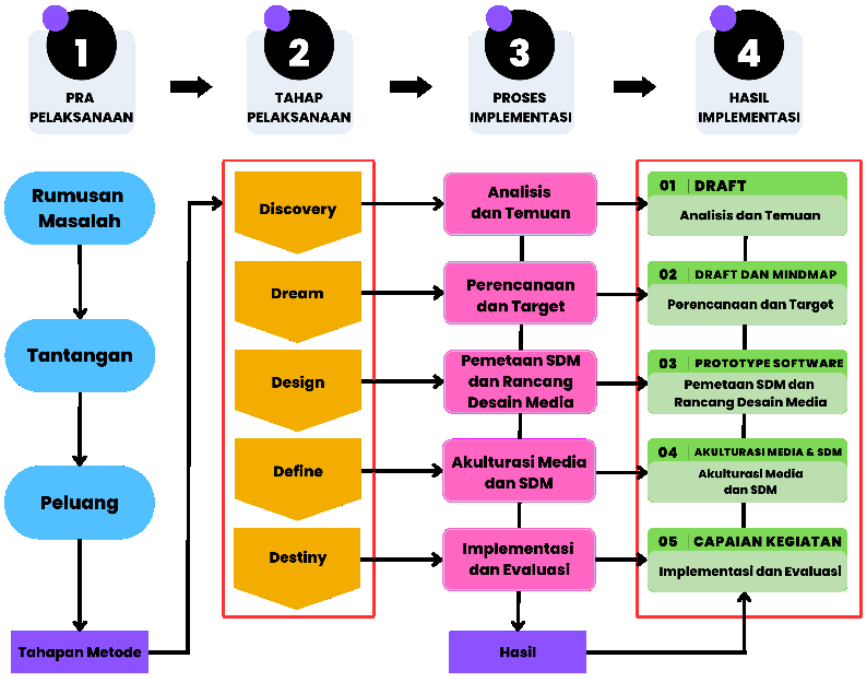

Figure 1: Implementation Flow, adapted from [7]–[9].

2.2. Data Analysis

2.2.1. Media validation test and material validation test

$$V.ah = \frac{TSe}{TSh} \times 100\%$$

Description:

V.ah. : Expert validation

TSe : Total Empirical Score

TSh : Total Expected Score

The decision making of the validation test is based on the achievement level criteria, namely if the achievement level is 81% - 100% then it can be classified as very valid, 61% - 80% is classified as valid, 41% - 60% is classified as quite valid, and if it is less than 40% then the medium is classified invalid.

2.2.2. Practicality Test

The practicality test data was obtained by filling out an assessment instrument consisting of 10 statement items. Practicality data is analyzed by percentage using the following formula:

$$Practical\ Value = \frac{Total\ score\ obtained}{Maximum\ total\ score} x\ 100\%$$

After the practicality percentage is obtained, the practicality level assessment criteria is based on if the practicality value range is 86% - 100% then it is at a very practical level, the range is 76% - 85% at the practical level, the range is 60% - 75% at the level is quite practical, the range is 55 % – 59% is not practical, and if the practicality value is less than 54% then it is at a very impractical level.

3. Results and Discussion

3.1. Product Visualization

The use of the latest technology to create interactive batik designs is part of the product visualization of this project. Village visitors can participate directly in the process of making batik through digital applications and touch screen-based technology. Through direct interaction with this technology, visitors have the opportunity to develop their own creativity and understand the process of making batik in more depth.

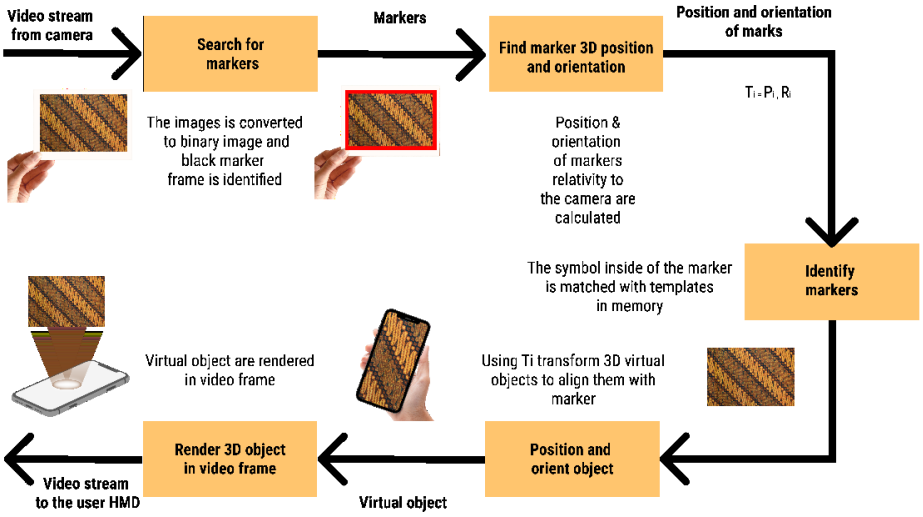

Figure 2: Product Visualization.

The augmented reality function in the AR application of interactive batik motifs, users can point their device's camera at batik cloth that has certain motifs. Through image detection, the application will recognize existing batik motifs and display additional visual effects, such as animations, sounds, or additional information about these patterns . For example, when the user points the camera at a batik cloth with a bird motif, the AR

application can display birds flying around the batik motif, emit the sound of birdsong, and provide an explanation of the symbolic meaning of birds in local culture associated with the batik motif (Arifitama, 2020). In addition, users can also interact with batik motifs by touching the screen. They can rotate, zoom, or move the batik motifs on the screen of their device, so that they can observe the details of the motifs more closely and can provide philosophical images. The batik motifs that are the focus of development consist of: 1) Gamelan 1 Motifs, 2) Flora Spells, 3) Mantraman Today, 4) Beskalan, 5) Gamelan 2, 6) Kentrung.

3.2. Analysis Test Results

3.2.1. Media Expert Validation

Based on the results of the analysis of media expert validation data on all aspects of the assessment, an empirical score was obtained at 181 with a total expected score of 200. So that an overall average of 90.5% was obtained with a very valid achievement level. Thus the design of interactive batik motifs as the flagship of Kampung Mantraman, Pagelaran Village, is appropriate to be used as a medium for branding a typical Javanese cultural village.

3.2.2. Material Expert Validation

Based on the results of the analysis of material expert validation data on all aspects of the assessment, a total empirical score of 177 was obtained with a total expected score of 200. So that an overall average of 88.5% was obtained which could be classified at a very valid achievement level. Thus the material aspects of the design of interactive batik motifs as the flagship of Kampung Mantraman, Pagelaran Village, are appropriate to be used as media branding for a typical Javanese cultural village.

3.2.3. Practicality Test Analysis Results

Based on the results of the analysis of the results of filling out the practicality assessment instrument, the overall average result was 90.8%. When referring to the practicality assessment criteria, the media is at a very practical level. The results of the practicality questionnaire analysis are presented in the following table:

Table 1: Practicality Data.

Items	Practicality Score (%)	Criteria
1	88	Very Practical
2	92	Very Practical
3	92	Very Practical
4	88	Very Practical
5	88	Very Practical
6	96	Very Practical
7	92	Very Practical
Average	90,8	Very Practical

4. Conclusion

This activity successfully combined interactive batik designs with human resource incubation, creating business opportunities in the arts and technology fields. Through interactive batik designs, the user experience is enriched with visual and audio interactions, while human resource incubation empowers local communities to produce competitive designs. This project is a bridge between Javanese cultural heritage and technology, introduces Mantraman as a Javanese Cultural Village brand, and enhances economic opportunities through art and technopreneurship. This activity is entirely through non-APBN funding sources, State University of Malang in 2023.

References

[1] Iriaji I, et al. “DEVELOPMENT OF NFT ARTWORK BASED ON LOCAL CULTURAL ASSETS IN PAGELARAN VILLAGE,” *International Conference on Art, Design, Education and Cultural Studies (ICADECS)*, vol. 4, no. 1, Art. no. 1, 2022, Accessed: Aug. 31, 2023. [Online]. Available: http://conference.um.ac.id/index.php/icadecs/article/view/7917

[2] Iriaji I, Hariyanto H, Vega B, Marcelliantika A, Aruna A, Surya E. “INCUBATION OF COMMUNITY SANAN VILLAGE TO PRESERVE CULTURAL ARCHIVES BASED ON NFT,” *International Conference on Art, Design, Education and Cultural Studies (ICADECS)*, vol. 4, no. 1, Art. no. 1, 2022, Accessed: Aug. 31, 2023. [Online]. Available: http://conference.um.ac.id/index.php/icadecs/article/view/7918

[3] Vega BL, Aruna A, Surya EP, Marcelliantika A, Iriaji I. “INCUBATION OF HUMAN RESOURCES BLITAR REGENCY BASED ON NFT ARTWORK,” *International*

Conference on Art, Design, Education and Cultural Studies (ICADECS), vol. 4, no. 1, Art. no. 1, 2022, Accessed: Aug. 31, 2023. [Online]. Available: http://conference.um.ac.id/index.php/icadecs/article/view/7926

[4] D. L. Edy, "IMPLEMENTASI MESIN MEJA PUTAR ELEKTRIK BAGI WARGA DESA PAGELARAN KEC. PAGELARAN KAB. MALANG UNTUK PENINGKATAN HASIL PRODUKSI GERABAH," *Jurnal Pengabdian Pendidikan dan Teknologi (JP2T)*, vol. 3, no. 2, Art. no. 2, Nov. 2022, https://doi.org/10.17977/um080v3i22022p81-86.

[5] Hasyimy MA, Hidajat R. Pembagian Kerja Berdasarkan Gender pada Sentra Gerabah Desa Pagelaran Malang Jawa Timur. JRI. 2022;39(1):25–36.

[6] Arifitama B. "Pelatihan Pembuatan Model 3d Alat Peraga Edukasi Hidrologi Berbasis Augmented Reality untuk Guru," *Jurnal Pengabdian Masyarakat Multidisiplin*, no. Query date: 2021-04-18 15:07:57, 2020, [Online]. Available: http://jurnal.univrab.ac.id/index.php/jpm/article/view/1263

[7] Al-Kautsari MM. ASSET-BASED COMMUNITY DEVELOPMENT : STRATEGI PENGEMBANGAN MASYARAKAT. Jurnal Empower : Jurnal Pengembangan Masyarakat Islam. 2019 Dec;4(2):2.

[8] García I. Asset-Based Community Development (ABCD): core principles. Research Handbook on Community Development. 2020;(Apr):67–75.

[9] Harrison R, Blickem C, Lamb J, Kirk S, Vassilev I. Asset-Based Community Development: Narratives, Practice, and Conditions of Possibility—A Qualitative Study With Community Practitioners. SAGE Open. 2019 Jan;9(1):2158244018823081.

[10] Marcelliantika A, et al. "DESIGN OF GAME-BASED LEARNING MEDIA THE HISTORY OF GENERAL SOEDIRMAN'S JOURNEY IN THE PACITAN REGENCY GERILYA WAR," *International Conference on Art, Design, Education and Cultural Studies (ICADECS)*, vol. 4, no. 1, Art. no. 1, 2022, Accessed: Aug. 31, 2023. [Online]. Available: http://conference.um.ac.id/index.php/icadecs/article/view/7915

[11] Alby Aruna Ulya Aziza Fitriya NF, Arimbawa AG. "SCULPTURE AND CARVING ART VIRTUAL MODULE BASED ON 3D AUGMENTED REALITY," *ISoLEC Proceedings*, vol. 5, no. 1, Art. no. 1, Nov. 2021.

[12] Aruna A, Iriaji I, Rini DR. "DIGITAL LEARNING MEDIA FOR CULTURAL ARTS CLASS-VII PROTOTYPE CURRICULUM INTEGRATED 6C AND TPCK," *International Conference on Art, Design, Education and Cultural Studies (ICADECS)*, vol. 4, no. 1, Art. no. 1, 2022, Accessed: Aug. 31, 2023. [Online]. Available: http://conference.um.ac.id/index.php/icadecs/article/view/7921

[13] J. N. Izza, Z. Firdaus, M. F. A. Roziqin, A. Aruna, and D. Setiawan, "Pengembangan animal section game simulator dengan VR sebagai alternatif praktikum," *Prosiding*

Seminar Nasional Pendidikan Biologi, vol. 8, no. 1, Art. no. 1, Dec. 2022.

[14] Firdaus Z, Izza JN, Aruna A, Novaldi MD, Setiawan D. Pengembangan mikroskop online interaktif pada materi biologi sel guna revitalisasi pembelajaran praktikum daring [Jurnal Inovasi Pembelajaran]. JINoP. 2022 May;8(1):1.