

Teaching the Creation of Batik Motifs to Foreign Students through Distance Learning

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Abstract

Implementing short courses on the complex process of batik creation for foreign students, which have to be conducted online due to the COVID-19 pandemic, presents a challenge. Therefore, this research aims to explore the implementation of batik art practices that involve online learning and digital technology. This study entails an online course involving twenty-six (26) foreign students to provide empirical evidence about the practical procedure for making batik motifs with digital applications. Consequently, it confirmed that the artistic practice of making batik motifs can be taught online, and participants can effectively make these designs by employing the Dbatik application.

Keywords: batik, motifs, distance learning, arts practice

1. Introduction

Batik, the resist-dyeing technique of patterning cloth through the application of wax, has been considered an art practice for many centuries (Achjadi, 2011; Doellah, 2003). The production involves a long process, takes a lot of patience, a steady hand, and many repeated applications to obtain the desirable motifs and colors. Several steps must be performed, including the preparing of the cloth material, cleaning, and designing, or tracing of the motifs into the cloth. It also entails pasting and coloring the motifs, walling or covering the motifs with wax, dyeing the fabric, chlorination to remove wax, and drying the cloth (Russanti *et al.*, 2019). This whole process is performed for five days to several weeks, making batik a high-value art product.

Javanese batik has deep links with local traditions, beliefs, philosophies, and social orders and has become a cultural intermediary that connects Indonesia with other parts of the world. (Wronska-Friend, 2018). Hence, many international students take short courses on batik in Indonesia, and apart from the art techniques, they also hope to learn the country's culture (Ito, 2016). Several short courses on this art form are organized by educational institutions or government agencies and take place for three days to one week (Tyznik, 2019).

Teaching batik to foreign students in a relatively short time is a huge challenge, as the process is very complex, involving nine stages and deep cultural philosophy. It entails prioritizing certain factors to allow unfamiliar participants to grasp the concept. Although the short training course focuses on the production process, which comprises how to manage fabrics, wax, and dyes into batik products (Widihastuti, 2014), the training that focuses on motif development is still rarely performed. Meanwhile, the aim of batik training should be to increase the awareness and appreciation of the Indonesian batik cultural heritage, including the history, cultural values, and skills of motif development (Efianingrum, 2011; UNESCO, 2009).

In 2020, the COVID-19 pandemic forced many countries to adapt to new situations and change how they provided education. Hence, the use of video conferencing applications, such as Zoom meetings and Google classrooms, is an integral parts to distance learning and response to the face-to-face restrictions during this pandemic (Octaberlina & Muslimin, 2020). The batik short course program was immediately impacted, and several foreign universities agreed to conduct it remotely due to travel restrictions in some countries. Therefore, the courses cannot focus on batik production practices that involve direct interaction between instructors and students but on other procedures that can be executed remotely. Out of the several stages of making batik, one that can be taught remotely is motif creation.

This procedure is directly practicable by the participants because the process is similar to drawing on paper and does not require special materials, such as wax, cloth, and dye.

As an art practice, it is easier to draw batik motifs with the mediation of certain software (Chang *et al.*, 2019). In related research, the process of drawing motifs using mathematical techniques and automatic repetition, such as “Batik Fractal,” can accelerate the process of making new designs (Nurjanah, 2019). However, this technique produces a new type of motif that is different from traditional batik patterns. Although Wibisono and Toha (2001) and Ratnadewi (2020) offered geometry-based batik software, it requires basic knowledge of computer graphics to run it. Due to the short training course time, software that is easy for participants to use is needed.

Therefore, the focus of this article is to reveal and explain how to remotely teach people to make batik motifs through the digital application, and involved discussing the following research questions:

- 1) How can batik motif creation be taught effectively involving digital technology?
- 2) What are the experiences of foreign students in making batik motifs via distance learning?

2. Design and Research Methods

This study used a mix-method procedure with an exploratory and descriptive design (Creswell, 2009), while the researcher acted as a distance instructor and taught batik motif-making. Then, the development process by the students was observed, and the resulting motifs were analyzed in terms of complexity, time, color, and the use of repetitive patterns.

2.1 Context of the Study

The short courses on batik for foreign students began in 2016, and this study occurred in the Arts Department, Universitas Negeri Semarang, during one of such programs in 2020. Generally, the regular courses are held for two days with a series of onsite activities, practices of batik production, and visits to the location of batik craftsmen. However, the courses, alongside several activities, had to be run remotely in response to the COVID-19 pandemic in 2020. The comparison between the regular and online courses can be seen in the following table:

Table 1. Regular and online program outlines

Regular Course day 1		Online Course day 1	
<i>Duration</i>	<i>Subjects</i>	<i>Duration</i>	<i>Subjects</i>
30 min	Indonesian Culture	30 min	Indonesian Culture
1 hour	Introduction to Batik	30 min	Introduction to Batik
1 hour	Batik Fundamentals	15 min	Video explanation of Batik Production
4 hour	Batik Production Practices	1 hour	Introduction of Dbatik apps
Regular Course day 2		Online Course day 2	
<i>Duration</i>	<i>Subjects</i>	<i>Duration</i>	<i>Subjects</i>
5 hours	Visits to batik craftsmen	2 hours	Motif development with Dbatik apps
		2 hours	Motif development review

As shown in table 1, the implementation of the motive-making online training takes 3 hours of practice, 1 hour shorter than regular practice. Because distance learning is a new phenomenon in batik courses, the researchers wished to explore the effectiveness of conducting distance-learning while teaching art practices and the experiences of students when learning the process.

2.2 Participants and Sampling

The online batik short course was attended by twenty-six participants (N=26) and comprised students from Japan, Denmark, and Malaysia who had the opportunity to learn about Indonesian culture and watch the batik-making process in video form. They consisted of thirteen males and females each, were all from non-art majors, and had different basic knowledge about batik. Participants from Malaysia, for example, already knew batik from their from living there or from visiting Indonesia, while those from other countries had very limited knowledge.

Table 2. The Participants Demographics

Factor	Total Participants
Gender	
Male	13 (50%)
Female	13 (50%)
Majors	
Arts	0 (0%)
Non-arts	26 (100%)
Basic knowledge of Batik	
Yes	6 (23%)
No	20 (77 %)

2.3 Instruments and Data Collection

Zoom meetings and Dbatik applications were used in this study to teach the related batik subjects (Rahayu, 2020) and for training in making motifs, respectively. Dbatik is an application developed specifically for creating batik motifs through touchscreen techniques run on Android mobile phones (Wibawanto, 2020). The application imitates the process done by traditional batik crafters by digitizing hand strokes to make it easier for users that are unfamiliar with batik designs. It involves generating data as images and sending the saved motif images to the application server for further analysis. The image data is collected by the admin, in this case, the instructor or researcher, who uses the web data collection technique (Satterlee *et al.*, 2015). Meanwhile, a questionnaire and interview via an online form and a video conference, respectively, were used in the last session of the course to assess the student’s experience and learning outcomes.

2.4 Data Analysis

Each motif produced by the student was analyzed through extraction techniques to measure the process effectiveness (Nurhaida *et al.*, 2015), and the form, repetition, and production time were described through Dbatik’s analytic features. Meanwhile, the interview and questionnaire results were analyzed and compared to determine user experience. Special attention was paid to participant’s opinions about the obstacles encountered during the batik motif creation process.

3. Findings and Discussion

The implementation of the short course was divided into three main stages, namely the introduction, batik motif production, and evaluation.

3.1 Introduction Stage

At the beginning of the course, the instructor spent a few minutes waiting for all the participants to come online for the Zoom meeting. Because the students’ lived in different time zone, the course started at different times for them. After the course introduction session, the learners globally received video material about Indonesian culture, batik, and its philosophy, alongside the production process as seen in figure 1. The use of videos was considered easier because the duration is controllable, language barriers are overcome, and the material to be conveyed is streamlined (Vobornik, 2016; Lang, 2016). Unlike the regular courses, the material was summarized into half of the regular time for this online program.

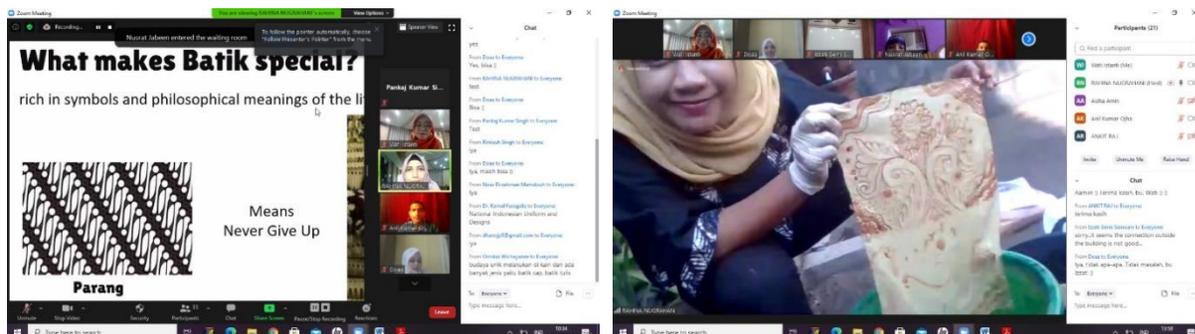


Figure 1. The introduction of the batik short course through Zoom Meeting

3.2 The Batik Motif Production Stage

3.2.1 Dbatik as An Intermediary Software

Dbatik was developed to assist traditional craftsmen with adopting digital technology to design batik motifs. Several modes of training in making batik motifs in the last three years that used Dbatik proved to simplify and speed up the production process (Wahyuni, 2019). The application has features that adapt from traditional batik-making techniques, such as pattern repetition, organic, and geometric drawing, symmetry, and coloring.



Figure 2. Dbatik Application and the resulting motif

Although this application was developed specifically to run on Android phones, which are used by over 90% of Indonesians (Nurhayati, 2020), it can also be run via a web browser for non-Android users. The output of this application is a JPG or PNG image file type, which can be stored internally or saved to the server. Also, the DBatik application supports output files for making batik stamps using the 3D printing method.

3.2.2 Training Procedures

The training procedures performed in this short course on making batik motifs can be seen in the following figure:

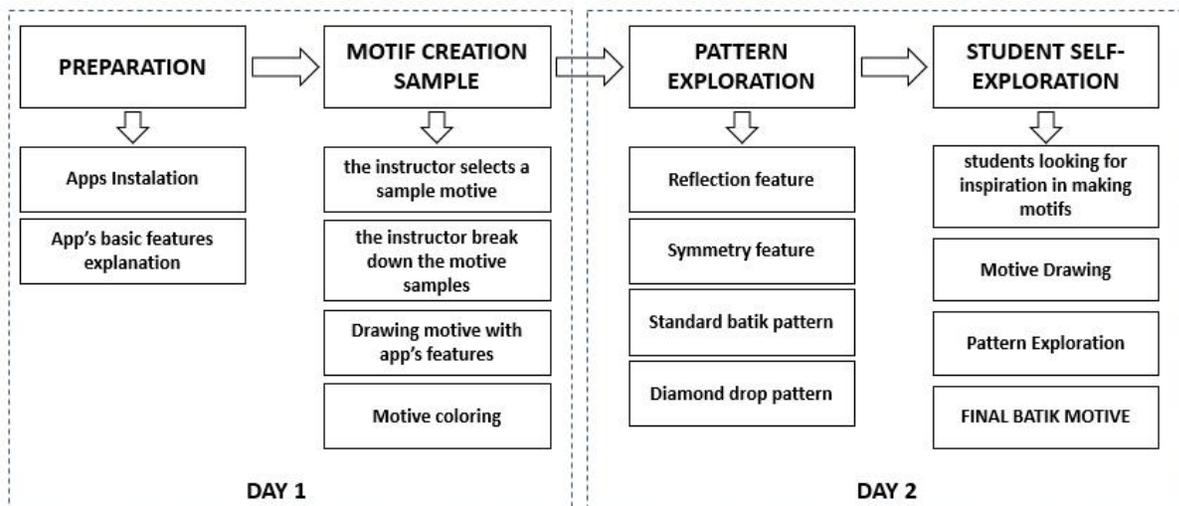


Figure 3. Training procedure of the batik motif short course

The first step was the introduction stage, and a link to download the DBatik application was provided via the Zoom meeting chat feature. Participants were asked to install the application on their mobile phones, while those without Androids were given a link to open it via the website.

In the second stage, the instructor began to explain how to make motifs through a selection of samples. Simple batik motifs, such as “kawung” and “ceplok,” were chosen, and meanings of the patterns were explained before the design through Dbatik began. Also, the process of drawing the motif through the mobile phone’s touch screen was described. The smooth draw feature, which helped the users create more controlled line strokes, was adapted from traditional

batik skills that require a steady hand. This process was displayed through the Zoom meeting with a close-up camera set up to ensure that the entire mobile phone and instructor’s hands were visible to the student.



Figure 4. “Ceplok” motif as a sample and the drawing through Dbatik apps

The second day of training began by introducing batik motifs’ repetition using symmetry, translation, rotation, and reflection techniques (Haake, 1989). Each of these repetitions has a different meaning and result in variations in the batik pattern. Although motif repetitions are made manually based on the craftsman’s experience in traditional batik making, the short course entailed a simplification design process through the application.

DBatik can create instant repetition of motifs, and this feature includes symmetry, reflection, horizontal and vertical translation, rotation, and free placement of motifs. This supported the learning process in the short online course, as the participants easily explored the alternative batik motifs produced. They also tried various combinations of techniques to get the desired results, as seen in Figure 5.

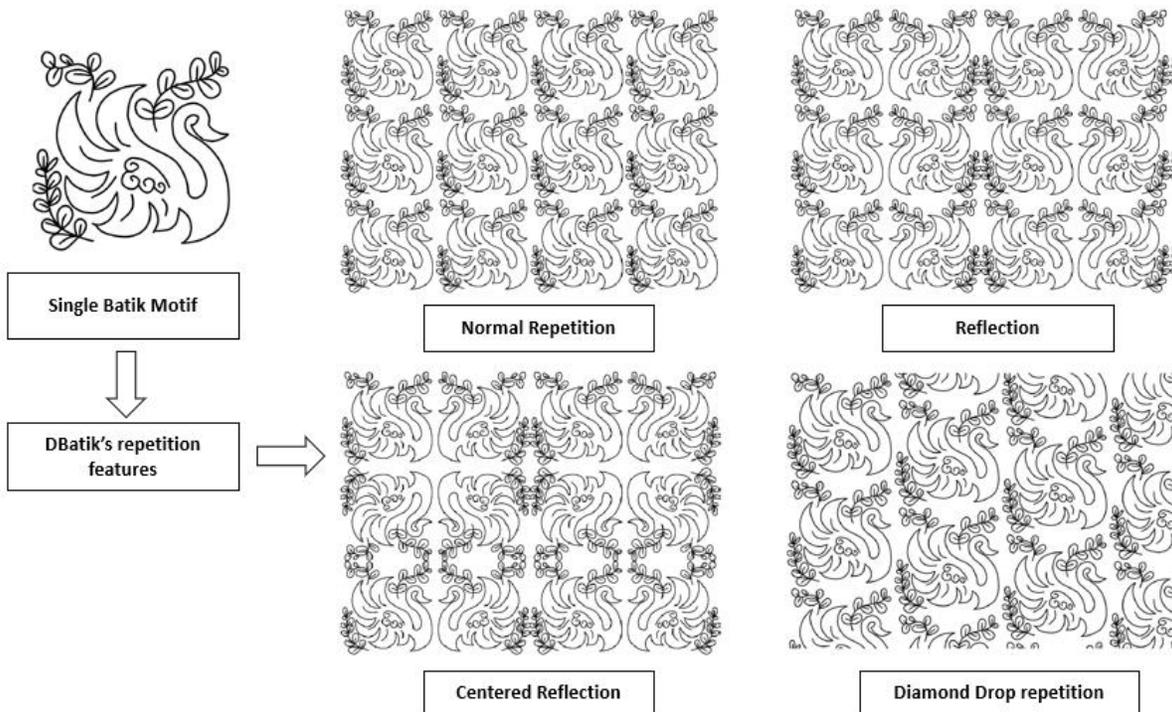


Figure 5. Motif repetition feature

The next stage allowed the participants to practice with the Dbatik application, make batik motifs as desired or according to observed references. At this stage, they were also allowed to ask the instructor whenever they experienced difficulty making the designs or running the software. Figure 6 shows some examples of the motifs produced by the participants on day 2 of the course.

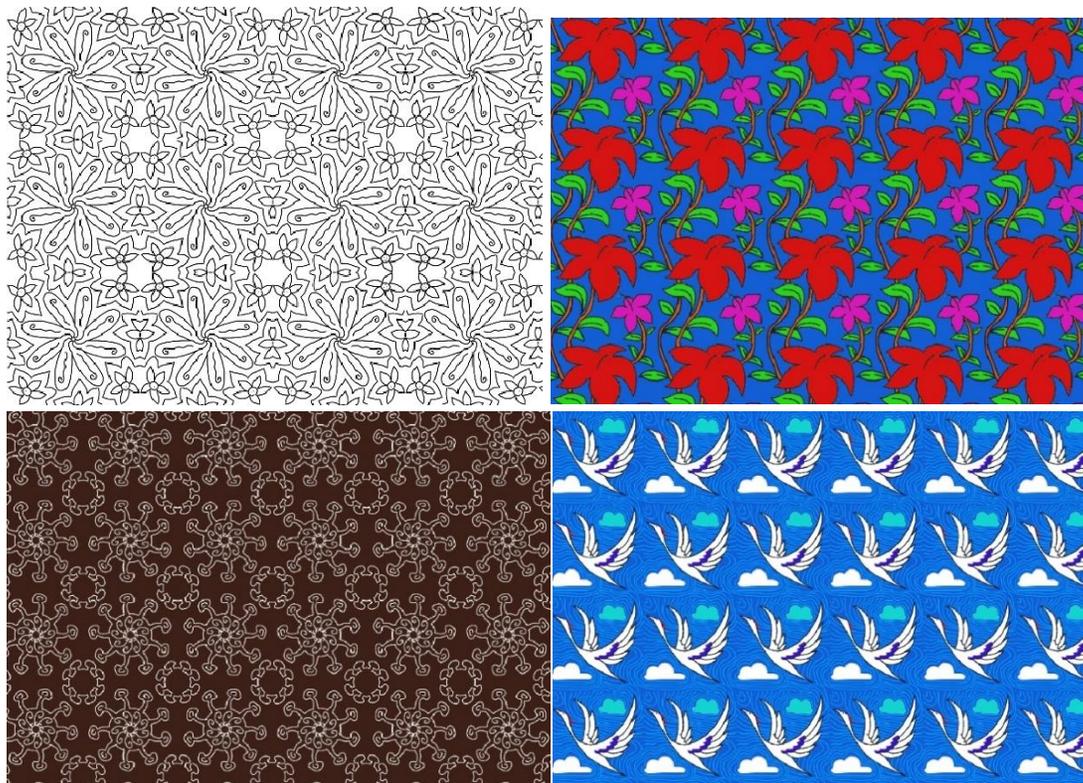


Figure 6. Motif sample produced by participants

In the last stage, the participants were asked to present the motifs they made, along with the inspiration for their creations. All the participants succeeded in making motifs with different levels of complexity. Based on the review process, it was also known that the inspiration for making the motifs was very dependent on the conditions surrounding the participants. Table 3 shows the motif analysis, performed according to several variables related to the batik creation process. The complexity was measured based on the number of lines or curves used to draw a motif. Also, the time variable was measured by the application, which automatically calculates from the first time the motifs were created to when it was last saved. The color variable was determined by the number of colors used in the design, while the repetition variable was obtained from the repetition feature used by the participants.

Table 3. Analysis of participants' batik motifs

Variable	Total of Participants (N = 26)
Complexity	
Low	5 (19 %)
Medium	12 (46 %)
High	9 (35 %)
Time	
< 30 minutes	10 (38 %)
> 30 minutes – 1 hour	12 (47 %)
> 1 hour	4 (15 %)
Color used	
B/W color	8 (31 %)
2 - 5 colors	14 (54 %)
> 5 colors	4 (15 %)
Pattern Repetition	
Normal repetition	6 (23 %)
Reflection	7 (27 %)
Centered Reflection	10 (38 %)
Diamond Drop	2 (8 %)
Free/irregular placement	1 (4%)

The analysis in Table 3 demonstrates that the online course participants could produce complex batik motifs, explore ideas or references around them and express them in their designs. Meanwhile, the use of colors varied from monochrome to multicolored, while the application of various repetitive patterns produced new motifs. The effective time for the development exercises was 30 minutes to 1 hour, and the lack of non-art major background did not influence the creation of batik motifs in this course. Creativity was not limited to the instructor's explanation, as the participants explored new motifs facilitated by intermediary software.

Table 4. Analysis of participants' perspectives

Statements	Total of Participants (N = 26)
Internet Connection Problem	
Yes	2 (%)
No	24 (%)
Language Barrier	
Yes	16 (%)
No	10 (%)
Application problem	
Yes	2 (%)
No	24 (%)
Other Distraction (music, youtube, game, etc)	
Yes	10 (%)
No	16 (%)

At the last stage, participants were asked to respond to online surveys to review the learning process and the obstacles they encountered. Table 4 shows the quantitative data regarding participants' perspectives on the batik motif online course.

The problems that arose based on the data on Table 4 were generally dominated by language barriers and distractions outside the course. Although the instructor used English in delivering the material, a large number of special words in the batik process, spoken in Javanese caused some confusion. Meanwhile, distractions outside the course, such as participants playing music or games and watching YouTube or other videos, were unavoidable due to the distance learning situation. Internet network and application usage were not significant problems; the instructor's explanation was received clearly, and the application was operated easily.

4. Conclusion

This research demonstrates the distance learning process of batik motifs' creation and shows that participants from various backgrounds can manage ideas creatively and visualize them in batik motifs. The Zoom meeting and Dbatik applications were considered effective in conveying the subject and practice of motif-making. Also, the direct art practice model using the digital applications provided an opportunity for the participants to develop skills in making batik motifs. Language barriers and interference outside the course posed significant obstacles in organizing the online courses for the foreign participants.

This research only covers the creation of batik motifs as an art practice, which is very diverse and requires different procedures for teaching online. Notwithstanding the limitations, this study can contribute to the art learning model through technological mediation and provide an overview of the procedures for implementing art practices through online learning. Further research on similar topics can also find alternatives to online art learning through digital technology.

References

- Achjadi, J. (2011). *The Glory of Batik: The Danar Hadi Collection*, (1st ed). Central Java: PT. Batik Danar Hadi.
- Chang, Y.-s., Chen, M. Y.-C., Chuang, M.-J., & Chou, C.-h. (2019). Improving creative self-efficacy and performance through computer-aided design application. *Thinking Skills and Creativity*, 31, 103-111. <https://doi.org/10.1016/j.tsc.2018.11.007>
- Creswell, J. W. (2009). *Research Design: Qualitative, quantitative, and mixed methods approaches* (3rd ed). California: SAGE Publications, inc.
- Doellah, H. S. (2003). *Batik: The Impact of Time and Environment*. Danar Hadi Solo.
- Efianingrum, A. (2011). Batik sebagai Sarana Peneguhan Identitas Lokal dan Karakter Bangsa. *Proceeding Seminar Batik 2011*. 2011:1-17
- Haake, A. (1989). The Role of Symmetry in Javanese Batik Patterns. *Computers Math. Application*, 17(4-6), 815-826. [https://doi.org/10.1016/0898-1221\(89\)90262-9](https://doi.org/10.1016/0898-1221(89)90262-9)
- Ito, F. (2016). *Cultural Exchange and Collaborative Production of Indonesia-Japan Traditional Textile Craftsman*. Cross-Cultural Artisan Association (CCAA).
- Lang, G. (2016). The Relative Efficacy of Video and Text Tutorials in Online Computing Education. *Information Systems Education Journal (ISEDJ)*. <https://isedj.org/2016-14/n5/ISEDJv14n5p33.html>
- Nurhaida, I et al. (2015). Automatic Indonesian's Batik Pattern Recognition Using SIFT Approach. Proceeding International Conference on Computer Science and Computational Intelligence (ICCSCI 2015). *Procedia Computer Science*, 59(2015), 567-576. <https://doi.org/10.1016/j.procs.2015.07.547>
- Nurhayati, H. (2020). Share of mobile operating systems in Indonesia 2012-2020, by the operating system. Statista report.
- Nurjanah, I et al. (2019). The application of jBatik software for batik products. *IOP Conf. Series: Materials Science and Engineering*, 830(2020). <https://doi.org/10.1088/1757-899X/830/4/042095>
- Octaberlina, L. R., & Muslimin, A. I. (2020). EFL Students Perspective towards Online Learning Barriers and Alternatives Using Moodle/Google Classroom during COVID-19 Pandemic. *International Journal of Higher Education*, 9(6). <https://doi.org/10.5430/ijhe.v9n6p1>
- Rahayu, D. (2020). Synchronous Zoom Web Conference System: An Exploratory Study on Students' E-Learning Experience. *Journal of ELT Research*, 5(1), 2020, 68-79. https://doi.org/10.22236/JER_Vol5Issue1

- Ratnadewi *et al.* (2019). Implementation of Art and Technology in Batik Purwakarta. *JTAM (Jurnal Teori dan Aplikasi Matematika)*, 4(1). <https://doi.org/10.31764/jtam.v4i1.1872>
- Russanti, I *et al.* (2019). Developing of Knockdown Gawangan Batik Design. *Advances in Social Science, Education and Humanities Research*, 335. <https://doi.org/10.2991/iceshsum-19.2019.99>
- Satterlee, E., *et al.* (2015). *Paper-To-Mobile Data Collection: A Manual*. USAID: Digital Development Team & FHI 360
- Tyznik, T. (2019). *Learning the Art of Java Batik*. Retrieved from <https://www.aafsw.org/learning-the-art-of-java-batik/>
- UNESCO. (2009). *Education and training in Indonesian batik intangible cultural heritage in Pekalongan, Indonesia*. Intergovernmental Committee for the Safeguarding of the Intangible Cultural Heritage.
- Voborník, P. (2016). Techniques, Procedures, and Strategies for Learning with Using Video-Tutorials. *Proceedings of ICERI 2016 Conference* 14th-16th November 2016, Seville, Spain. <http://doi.org/10.21125/iceri.2016.0165>
- Wahyuni, D. K. *et al.* (2019). Development of Batik Motifs through the D-Batik Application for Oemah Creative Association of Crafters in Kauman Village, Pekalongan City. *Imajinasi: Jurnal Seni*, 13(1), 21-26. <http://dx.doi.org/10.15294/imajinasi.v13i1.21921>
- Wibawanto, W *et al.* (2020). D-batik: Development of Batik Motifs with Digital Techniques. *Proceeding ISET 2019*, June 29, EAI. <https://doi.org/10.4108/eai.29-6-2019.2290325>
- Wibisono, A., & Toha, I. S. (2001). Desain Batik Canting Cap Berbantuan Komputer. *Jurnal Teknologi Industri*, V(1), Januari 2001: 1-12.
- Widihastuti. (2014). How to Make Indonesian Traditional Batik. *In Workshop: Design Development of Batik Fashion For Spring/Summer 2015-2016*. Yogyakarta: Faculty of Engineering Yogyakarta State University.
- Wronska-Friend, M. (2018). Batik of Java: global inspiration. *Proceedings of the Textile Society of America*. From: 16th Biennial Symposium of the Textile Society of America, 19-23 September 2018, Vancouver, Canada. <https://doi.org/10.32873/unl.dc.tsasp.0007>

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