**Digitalization of Small Batik Industry: UI/UX design to support Batik Lasem E Commerce**

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**Abstract.** Batik Lasem was once one of the six biggest industries during Dutch Colonialism. However, this industry began to experience extinction until now. It was caused by the difficulty of young Lasem to continue in this industry. They tend to work in modern sector inside or outside Rembang. Because of that they had experienced some difficulties to promote with a wider range. The objective of this project is to create application that can help Batik Lasem entrepreneurs in terms of promotion and sales. Research methods that used for this study is qualitative. This research taken from both online and offline (books, journals, internet, or interview). Deeply interview with Batik Lasem entrepreneurs with Santoso Hartono, Katrin, and Rahmini will be held. After that to get more informations an interview with Dante Hidayat will be held. She is a professional writer who did a research about Batik lasem.

**Keyword:** Digital Media; User Interface & User Experience; Application; E-Commerce

1. **Introduction**

*Batik Lasem* produced by batik craftsman in the district of Lasem and surrounding areas in Rembang Regency, Central Java Province. It is very detailed, smooth and charming, with a strong characteristic of red color like a chicken blood and unique motifs as the result from melting pot between Chinese and Javanese culture. *Batik Lasem* was the result of cultural acculturation due to the arrival of traders from various places. Lasem was the first place where Chinese traders landed in Indonesia (Basiroen, VJ. 2019). In general motifs of *Batik Lasem* can be divided into three types which are Chinese, Javanese, and Lasem motifs.

Nowadays *Batik lasem* Industry has dropped dramatically as the result of low interest of younger generation to continue this business. Young Lasem tends to choose to work in the modern sector, inside and outside Rembang. This problem can lead *Batik Lasem* extinction due to industrial competitiveness (modern) and the difficulty of regeneration of young entrepreneurs and crafters plus the state of Indonesia now, due to the Covid 19 pandemic,
many of their consumers can not conduct transactions directly. Digital prototype design of E Commerce may contribute positive impact to gain the market of Batik Lasem

2. Literature Review

2.1 Theories of Contrast
Contrast in visual design helps to direct the attention of user to the important object and helps them to focus on what to do next. For the example there are two buttons formatted identically, “Go Back” button and “Continue” button. If these two buttons were formatted identically it will make user have to read the text on each button carefully before making a decision (Travis, D. 2012).

2.2 Theories of Repetition
Repetition is all about consistency. In visual design, repetition can be done by repeating the same elements or objects that are presented consistently. The interfaces are more usable and easier to learn by user when similar elements or objects are presented consistently, it means both internal consistency (the application) and external consistency (the platform) (Travis, D. 2012).

2.3 Theories of Alignment
Theory of alignment simply use to make sure that all elements of the design line up horizontally and vertically. It gives the impression of being interrelated between one and other elements (Travis, D. 2012).

2.4 Theories of Proximity
The principle of proximity means that If there are two related elements, they should be placed close together. User build a conceptual model of how the interface is structured depends on information that organised on the screen, this is the reason why this principle makes user interfaces are more usable to organize information on the interface (Travis, D. 2012).

2.5 Theories of Color
Primary colors consist of three colors there are red, green, and blue (RGB). If two primary colors combined it can produce a secondary color such as cyan, magenta and yellow (CMYK) (Farkas, D. 2002). Monochromatic is the simplest kind of harmony. It consists of three shades, tones and tints of one base color (Farkas, D. 2002). Neutral color consists of black, white, and grey. Black are the strongest of all the neutral colors. It represents elegant, sophisticate, luxury, and prestigious. Meanwhile white often represents clean, purity and new beginnings. Gray is used to balance blackandwhite. it is often representing as emotionless and moody (North Thurston Public School. n.d.).

2.6 Theories of Apps
The usage of mobile applications are more suitable rather than website. First it has many features that can be effectively accessed, for example camera, location, gallery, etc. Second the usage of mobile application is more flexible, because people can use it anywhere and anytime (Wroblewski, L. 2011).

2.7 Theories of UI/UX
There are several implementations that must be considered to improve user interface and user experience, which are ambiguity, consistent, and goal.
3. Research Methodology

Research methodology that used for this study is qualitative. It will be done by doing both online and offline research that can be took from books, journal, other sources from internet, or interview. Furthermore to help determine suitable application, an interview with Batik Lasem entrepreneurs will be held. After that to get more informations an interview with Dante Hidajat will be held. She is a professional writer who did a research about Batik Lasem.

4. Results and Discussion

A. Design Concept

It is better to know the product itself before determining the visual design. The item that sells in this application are exclusive, only for Batik Lasem. That is why it can not be placed in common e-commerce such as Tokopedia, Blibli, Bukalapak, etc. If it is placed in common e-commerce then it does not looks like an exclusive item anymore, an exclusive product needs an exclusive place. In designing an application there are two very important things, User Interface (UI) and User Experience (UX).

1. User Interface: For the design interface, this application uses red as the dominant color. This color is taken from the distinctive color of the Batik Tiga Negri. Batik Tiga Negeri is one of Lasem's distinctive batik which has three colors. Red represents Lasem as a Chinatown, blue represents Pekalongan, and brown represents Solo. This red color is often called "getihpitik" which means chicken blood. In addition, motifs of Batik Lasem such as latohan, gunung ringgit, kricak/watupecah will be used as a background or button on the application, to provide a distinctive feel of Batik Lasem in this application that makes it different from e-commerce applications in general.

2. User Experience: For user experience the design has to be clear and simple so it can easily understand by users. According to “Analysis Based Message Design: Rethinking Screen Design Guidelines” by Beriswil, Joane E. simple design only place necessary objects on the interface in order to avoid ambiguity for the user (Beriswill, J.E. 1998). It was also mentioned earlier by Jeff Johnson, if there are too many elements, the end result will be a messy interface that is difficult for users to learn and understand. When fewer design elements are displayed, users can focus on important elements that will help them achieve their goals.

B. Work Process

Work process consists of brainstorming, sketching, and visual design. The brainstorming stage aims to find name of application and objective of the application. Sketching aim to create sketches of application logo and wireframe of the application, and Visual Design to execute the design from the sketches.

1. Brainstorming: First step is to brainstorming the name of application from the exist elements on Lasem. The name of this application is Latohan. It is a name of seaweed in lasem “Latoh”. It is Lasem people's daily food and it is often used as a motif of isenisen in every Batik Lasem. Latohan was chosen because it can be representing Lasem environment, and with hope that the money earned from selling batik products in this application can be used as daily food allowance. Next step is to identify the objectives of
this application. There are three objectives, first is to become an official store for Batik Lasem that make sure the users feel safe to purchase in this application. As mentioned in the previous example, Zara must have their own official store, as a proper place to display their products. Second as a media to promote and introduce Batik Lasem. It presents the information about history of Batik Lasem. Last is to provide new and interesting features that can attract user's attention. It is a 3D mockup that implemented Batik Lasem motifs to a bunch of things, for example shirt, mug, and tote bag. This feature aims to give users an overview of the Batik Lasem motifs that are implemented on other objects.

2. Sketching: First process is to sketch logo of Latohan. There are some sketches made and the chosen one is the Latohan Logo on the letter L. Next process is to create sketches about the wireframe and flow of the application. This process is also made to show the flow of information for users to be able to operate the application. This process is divided into two parts which are wireframe and user interface flow. Wireframe is a sketch where the priority in this process is the structure of information and also navigation on application screen. After the entire structure has been formed, then the next step is to connect all wireframe screens to create user interface flow.

3. Visual Design: First Next step is to digitize the logo from sketches. The color used for the logo is red. This color represents Lasem in Batik Tiga Negri, it is often called "getihpitik" which means chicken blood. This unique color can only be made in Lasem, that is why it represents the characteristic of Batik Lasem.

4.1 Results

The UI/UX appearance that has been developed to enhance batik Lasem digital marketing and E Commerce Strategy.
5. Conclusions

Although once Batik Lasem was stated as one of the six biggest industries, it cannot be denied that this industry has dropped dramatically as the result of low interest of young Lasem to continue in this business. Because only a few of the younger generation that want to run in this business, then popularity of Batik Lasem began to disappear and almost extinct. Plus the state of Indonesia, due to the Covid 19 pandemic, many of their consumers can not conduct transactions directly.

This application will be the first apps of Batik Lasem, it was created to support this industry in sales and promotions. So not only aims to sell, it also provides information for users such as history, motifs, and colors of Batik Lasem. Last but not least, this application has a new 3D objects features, which can implement motifs on several objects such as t-shirt, masker, and drawstring bag, in order to give illustrations to users.

By creating this application it is expected to support batik business in Lasem, such as providing access between sellers and buyer, in order to make transaction process easier. Besides because of Covid 19 pandemic, all transactions are mostly done by online.

Below are URL’s that may become the sample illustration of good UI/UX experience for the visual designer:

1. https://pitch.com/
2. https://www.airbnb.com/
3. https://boostedusa.com/
4. https://www.dropbox.com/

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