CHALLENGES IN PRESERVING BATIK AS INDONESIA'S CULTURAL IDENTITY FACING GLOBAL DEMAND OF SUSTAINABLE ECO-FRIENDLY FABRIC

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Abstract: *Globalization is nothing but worldwide interactions and exchanges, whether through technology, politics, culture or trade. With regard to trade itself, batik represents an important export unique to Indonesia, bearing a national pride but which is feared to have impacted by globalization as well as issues related to its quality as eco-friendly products. This paper has threefold purposes including the batik environmental quality and sustainability, examining the local community capacity and willingness to purchase batik products. The present research used primary data combined with secondary ones taken from interviews and questionnaires using purposive sampling with 125 respondents including batik owners in Solo, Central Java. The data were analyzed using Smart PLS Software 3.2.7 and SPSS 23 to test the reliability and validity. The results indicate that 65% of batik products are tested to have a significant correlation between consumers' willingness and batik environmental and sustainability aspects, with a value of 0.49 which is less than p < 0.05. This research though has some limitations since only few variables were considered related to the environmental aspects. Future research is then suggested to expand further details on enlarging the data scope in other regions. This paper has a social implication as it builds a social information sharing meant to boost batik business. The concept used in this research model is new having its own originality value as it examines the batik environmental quality and sustainability.*

Keywords: *Preserving, batik, cultural identity, environmental quality, sustainability.*

1   INTRODUCTION

Among the local products in textile industry known to Indonesia is batik. It is very important, seen as an economically successful industry, represented as national pride [1] and unique on its own as national identity [2]. When reminiscing back on October 2, 2009, UNESCO designated as National Batik Day [3] officially declared as national heritage for it meets the criteria it possesses like symbols, motives, with philosophical meanings of Indonesian people. Also, batik serves as cultural identity of Indonesians, with various patterns, colors and creations that symbolize the creativity and spirituality of the Indonesian people. Moreover, the batik textile industries provide numerous assets and advantages for local communities [4]. Such great positive benefits would be thriving in terms of export-import of goods and services, boosting foreign exchange through tourism sector, generating international business opportunities, hastening the emergence of modern shopping centers and creating more new jobs with a net economic profits evaluated at US $29.3 million, only in Central Java in 2007 [5].

However, in the batik industry, the production process is the main source of waste generation, among others, in the coloring, dyeing, washing and packaging processes. Authors in [6, 7] stated that the characteristics of batik industry waste are almost similar to the characteristics of waste originating from the textile and laundry industry, including alkaline waste, colored, Biological Oxygen Demand (BOD), temperature wastewater and suspended solid. On the other hand though, globalization has brought about tremendous amount of negative impacts on batik industries such as the emergence of obstacles and challenges in the development of the domestic industrial sector as most people would prefer imported products over local ones. According to [8], there were many illegal imports occurred during the past decade from China amounting Rp 290 billions of illegal imports value. Besides, the presence of information technology hastens globalization process creating diverse threats that must be solved in favor of local communities. As a result, the love for local products dwindles and the consumers' capacity to choose and their loyalty to stick on buying local products decreases. Globalization in fact has brought cultural

nuances and values that affect people's tastes and lifestyles. Through media, there are incessant receptions of information and western news which encourage, introduce new civilizations coming from all corners of the world. The world is always changing and globalization is a connected world as if there is no limit [9, 10]. As a matter of fact, it is undeniably true that globalization has now become a word that has been widely heard throughout the world since the beginning of the 21st century. It is hoped to bring up the whole communities together where changes would be felt collectively and affect many people across regions, countries, hitting hard the textile industries and swiping away local cultures, impacting our lifestyle and environment. Barker [11] asserted that globalization is a universal, political, cultural, social, economic connection that leads into various paths throughout the globe entering into our conscious. There have been many efforts and measures been undertaken by both local and central government in hope to tackle such issue [12]. Besides, many researchers [4, 5, 13] have conducted considerable amount of studies aimed at finding out the problems while expecting to introduce solution on how to maintain culture in the face of globalization. It seems like those measures remain on textbook only but do not have tangible or concrete answers amidst the war on globalization threats toward local cultural values, especially when it comes to trades like imports-exports problems. Both the local and central government should work hand in hand in order to have a new thriving technology along with better cultural philosophical value in hope to enhance batik quality [5].

2   PREVIOUS STUDIES

Pollution and impact on the environment [14] are found in all stages of the batik production process which includes preparation, sticking of wax, coloring, lighting and washing. Liquid waste from the batik making process comes from fabric processing, dyeing and illumination activities [14]. In the fabric processing and coloring process, the wastewater produced contains chemicals which can contribute to the increase in COD and color of wastewater. While in the highlighting activities, the resulting liquid waste contributes to the increase in BOD$_5$ of wastewater [14].

Disposing colored wastewater like the batik industry is not only damaging the aesthetics of waste water recipient bodies. Colored waste can poison aquatic biota in these waters [6]. In addition, concentrated colors will prevent sunlight penetration in water bodies, thus affecting the process of photosynthesis in water [6]. As a result, oxygen produced in the photosynthesis process is small and has an impact on the disruption of aquatic biota life [6]. Also, toxic heavy metal compounds found in the printed batik industrial waste, allegedly chrome (Cr), lead (Pb), nickel (Ni), copper (Cu), and manganese (Mn). Toxic effect that appears on the tissues and organs of the body is due to the interaction of heavy metals with important molecules of cells that damage the structure and function of cells in target organ [15]. Based on the Governor Regulation of Yogyakarta Special Region Number 7 (2010), the quality standard of liquid waste for batik industry activities has 8 parameters that must be met before being discharged into the environment. Test should be carried out and check the quality of solid waste originating from sediments resulting from the coagulation process of liquid waste remazol and indogosol dyes using alum. Surahman [16] in his paper, using qualitative descriptive analysis, asserts the impact of the development of technology and media which influence the cultural arts and behavior of the Indonesian people. Also, in his book entitled 'Communication Technology Determinism and Media Globalization of Indonesian Art and Culture', he claimed that globalization has brought up tremendous changes in people view asserting that culture shape individuals behavior.

In addition, according to the research undertaken by Roland [17], he reported that globalization is seen as a serious threat to the existence of local culture and cannot be avoided. He reiterated that people must prepare themselves to accept the real impact of globalization in their lives. His view seems to address two facets of globalization. On one hand, globalization does not always erase local identity but it could also bring a positive impact to seed and multiply the strength of local identities that have been marginalized. Leichenko and O'Brien [18] said that mass media can influence the thinking and people's behavior for better or worse. Globalization will not develop rapidly without the role of mass media. He agrees on maintaining social and cultural aspects as a national identity by filtering foreign cultures coming into Indonesia in order to preserve the nation's cultures. Scholte [19] said that communication process and international transportation has cleared away cultural boundaries among countries where globalization plays an important role in human activities. Through interactions, he continued that local communities in Indonesia have experienced a process of being influenced by foreign cultures. Mubah [20] admitted that the hegemony of foreign cultural is an inevitable condition that must be addressed. The flow of foreign cultures penetrating the nation's territorial boundaries encourages local cultural traffic which then metamorphoses into a culture adhered to by global society. He found out that local culture faces a serious threat from foreign cultures while disturbing people's lives through communication and information media. Also, he asserted that Indonesia cannot withstand against the penetration of foreign cultures due to its inability in terms of poor

communication and information technology resulting into the fading of cultural heritage. In addition, Swasono [21] demonstrated the necessary strategy needed to maintain local identity eroded by foreign cultures to be gradually able to have the potential to thwart them. Such strategies can be implemented by building identity of the nation and strengthen the national identity, understanding and spreading its own cultural philosophy to all people while issuing regional regulations that protect local culture, and utilizing information technology to introduce local culture to the world community.

3 METHODS

Both primary and secondary data were used in this research basically collected through interviews and questionnaires. There were 125 respondents who met our criteria including batik owners settled in Solo, Central Java. The choice of the research area was thoughtfully considered since Solo is among the 14 districts/cities having creative economic potential according to data obtained from the Central Statistics Agency of Central Java Province.

This article uses a quantitative method. It shall shed light on a simple analysis of data obtained from batik industries in Solo, Central Java during the period April - July 2016. The data were analyzed using Smart PLS Software 3.2.7.

4 RESULTS AND DISCUSSION

Our first result demonstrates the characteristics of respondents as indicated in the Table 1.

As shown in the Table 1, the total amount of respondents are 125 including owner-managers of batik. There are 52 male respondents (41.6%) and 73 female respondents (58.4%), which unveils that there are more female respondents than male ones. In terms of age, there are more females younger than males below 35 years old. In meantime, males seem to have obtained more education reaching Master degree than females who only obtained Bachelor degree, totalling 2 respondents (1.6%). It is evident based in the Table 1 that the vast majority of respondents finish high school studies where males are 32 (25.6%) against females 25 (20%).

Besides, with regard to occupational experience, males seem to dominate with 21 respondents (16.8%) having 1-5 years of experience versus females with 15 of them (12%) whereas work experience between 5 to 10 years, males are still dominant with 38 (30.4%) of respondents against females 32 (25.6%) and finally above 10 years of experience, there are 11 males (8.8%) and 8 females representing 6.4%.

Table 2 Consumers' capacity and willingness to pay batik products (source: primary data)

Price [currency in Rupiah]	Number	Percentage [%]
> 500 000	3	2.4
< 250 000	5	4.0
< 125 000	24	19.2
< 75 000	38	30.4
< 50 000	55	44.0
Total	*125*	*100*

Based on Table 2, it appears that the surveyed respondents demonstrate their capacity and willingness to purchase batik products. It is shown that 55 (44%) of them were willing and able to purchase batik products that cost less than Rp. 50 000 while there were only 3 people represented as 2.4% had the ability to purchase batik products costing more than Rp. 500 000. Such issue was due to the price instead of quality since foreign clothing cost less in some way.

Table 1 Number of respondents' source: primary data

No.	Demographic characteristics	Category	Male	Female	Total	Percentage [%]
1.	Gender		52	73	125	100
2.	Age	< 20	3	5	8	6.4
		21-35	25	37	62	49.6
		35-50	17	22	39	31.2
		> 50	7	9	16	12.8
Total			*52*	*73*	*125*	*100*
3.	Education	Uneducated	4	6	10	8.0
		Primary	6	11	17	13.6
		Junior High	19	15	34	27.2
		High School	32	25	57	45.6
		Bachelor	4	2	6	4.8
		Master	1	0	1	0.8
		PhD	0	0	0	0
Total			*66*	*59*	*125*	*100*
4.	Work duration	1-5 years	21	15	36	28.8
		5-10 years	38	32	70	56.0
		> 10 years	11	8	19	15.2
Total			*70*	*55*	*125*	*100*

Besides, according to our objective, it has been intended to examine the impacts of batik industry in the face of global demand on eco-friendly products as shown in the Table 3.

Table 3 Environmental quality aspect of batik fabric (source: primary data)

No.	Parameters	Max content
1	Conductivity [μmhos/cm]	1.562.5
2	Temperature [°C]	15
3	BOD [mg/L]	132.56
4	COD [mg/L]	426
5	TSS [mg/L]	325
6	TDS [mg/L]	1254
7	Crude oil [mg/L]	-
8	pH	9.5

The Table 3 indicates that batik industry wastewater has the characteristics of turbid color, foaming, high pH of 9.5 and high BOD concentration of 132.56 mg/L which is still below the environmental quality standard. The sustainability indicator for this aspect of environmental quality is the reliability of technology used in reducing pollutant which is processed through the measurement of the concentration of domestic wastewater parameters

Table 3 shows the results of the average effluent wastewater quality test in certain areas in Solo, Central Java but still below the environmental quality standard.

4.1 Structural model design

The description of latent variables and their manifest variables are as follows:

1) Exogenous latent variables on environmental quality aspects represented by X1 has four indicators namely, biotic and abiotic parameters expressed by X1.1; wastes stated by X1.2; emissions stated by X1.3 and chemical products stated by X1.4.

2) Exogenous latent variables on sustainability aspects represented by X2 have four indicators namely, ecological parameters expressed by X2.1; life cycle assessment expressed by X2.2; eco-friendly products stated by X2.3 and end life phase stated by X2.4.

3) Exogenous latent variables on Individual differences (X3) has four indicators namely, information processing stated by X3.1; learning processing stated by X3.2; changes in attitudes and behaviors stated by X3.3 and motivation and involvement declared by X3.4.

4) Endogenous latent variables on consumers' capacity and willingness (Y) has four indicators namely, willingness expressed by Y1.1; capacity to choose stated by Y1.2; information on the products search stated by Y1.3 and alternative evaluation stated by Y1.4.

When evaluating the measurement model for the environmental and sustainability aspects of batik products, the indicators used were not entirely valid and reliable. The Figure 1 shows the structural model suitable for this research.
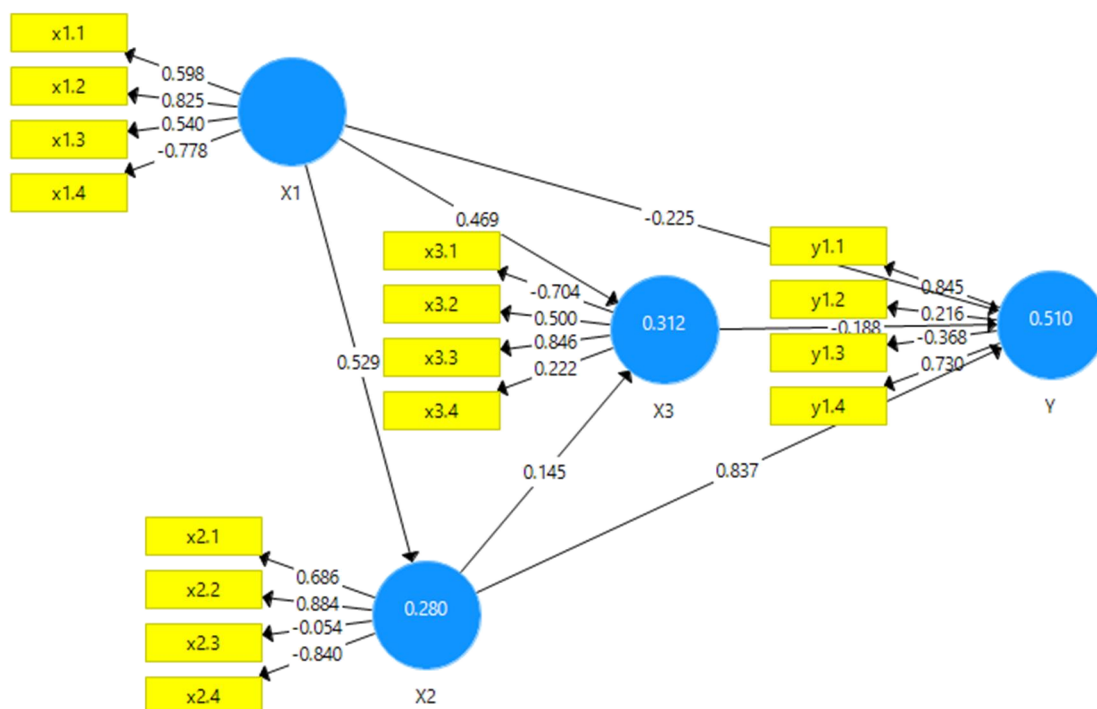

Figure 1 Structural model

4.2 Data processing using smart PLS 3.2.7 (source: primary data)

The evaluation of the structural model (inner model) on SEM using Smart PLS is carried out by examining the R Square (R^2) test and the significance test through the estimation of the path coefficient. The testing of R^2 (R Square) output for the R^2 value using the smart PLS 3.2.7 software program as obtained in Table 4 and Figure 2.

Table 4 Output calculation of R-Square (R^2) (source: primary data)

	R Square	R Square Adjust…
X2	0.280	0.228
X3	0.312	0.206
Y	0.510	0.387
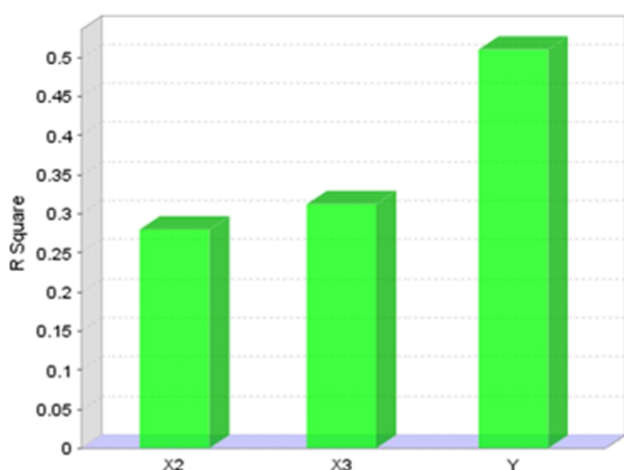
Figure 2 Output calculation of R-Square R^2 (source: primary data)

The R-squared (R^2) value was used to measure how much influence certain independent latent variables have on the dependent latent variable. According to [22], the R^2 result of 0.67 indicates that the model is categorized as good.

Table 4 shows that the R^2 value of this research is 0.510 which means it has a value a bit less than 0.67. So, it can be said that the model is categorized as a fairly good. Besides, SPSS 23 was evidently necessary in hope to measure and test the correlation between variables as demonstrated in Table 5.

Pearson's correlation coefficient was used in hope to measure and test the correlation coefficients between both independent and dependent variables meant to analyze the environmental quality aspects relationship with the consumers' willingness in Solo, Central Java.

It is indicated that not the entire variables used were correlated but some had a positive relationship with the dependent variable at the 0.01 level (2-tailed, 0.478 – 0.494). Thus, there is a significant correlation between the consumers' willingness and batik environmental quality and sustainability aspects, with a value of 0.49 which is less than p-value < 0.05.

Table 5 Correlation analysis (source: primary data)

	Correlations	x1	x2	x3	Y
x1	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	18			
x2	Pearson Correlation	0.478*	1		
	Sig. (2-tailed)	0.045			
	N	18	18		
x3	Pearson Correlation	-0.002	0.114	1	
	Sig. (2-tailed)	0.994	0.651		
	N	18	18	18	
Y	Pearson Correlation	-0.271	-0.464	0.494*	1
	Sig. (2-tailed)	0.277	0.052	0.037	
	N	18	18	18	18

*Correlation is significant at the 0.05 level (2-tailed).

5 CONCLUSION

Batik textile industries provide numerous assets and advantages for local communities. Tremendous positive benefits boost export-import of batik products enhancing foreign exchange. However, myriads of challenges emerge due to globalization which has brought about tremendous amount of negative impacts on batik industries such as the emergence of obstacles and challenges in the development of the domestic industrial sector as most people would prefer imported products over local ones. Besides, batik products seem to be eco-friendly despite certain products were tested less environmentally friendly and sustainable due to excess use of chemicals. Consequently, it was perceived that the consumers' willingness to purchase batik products has been hampered by such issue as proven by the correlation coefficient during our analysis where p-value was less than 0.05. Thus, efforts must be made in tackling these problems so that Indonesian culture would prevail. Various ways can be carried out in preserving culture, but the most important thing is that awareness should be fostered and a sense of belonging and loving of local culture should be seen in every aspect of each Indonesian person.

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