

EFFECT OF PRODUCT CUSTOMIZATION ON CONSUMERS' SHOPPING ENJOYMENT TOWARDS THE INTENTION TO PURCHASE ONLINE

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Abstract

The study examined the effect of an interactive mechanism on online consumers' shopping enjoyment towards the intention to purchase Batik fabric online. The interactive mechanism tested in the study allows consumers to customize their Batik design to the extent of changing the design colors, changing the design arrangement and selecting the fabric material for the customized Batik. An integrated theoretical framework from information systems (Technology Acceptance Model), marketing (Consumer Behavior) and psychology (Environmental Psychology), was based for this study. In order to explore the effect of product customization on the online consumers' emotional response (shopping enjoyment), an experiment was conducted with the participation of one hundred and sixty seven graduate students. Results indicated that product customization mechanism does affect online consumers' shopping enjoyment, which then leads to the intention to purchase Batik fabric online.

Keywords: batik, e-commerce, fabric, product customization, shopping enjoyment, textile

1 INTRODUCTION

Among the products sold on the Internet, air travel, consumer electronics and apparel are the three hottest categories where in the United States (U.S.) apparel products represent one of the fastest growing and most popular online product categories (Ryan, 2003). It is now a major challenge to online clothing providers to know how to optimize sales potential by predicting online consumers' Internet usage and shopping patterns (Sullivan et al., 2003). Several initiatives had been taken to improve the ability of the apparel product websites to reduce consumers' hesitancy in purchasing online (Hammond et al., 2000). The main factors for this hesitancy are deficiencies in websites' usability and navigation, product presentation which was far from the reality 'look', clothing can not be tried on, no custom made ordering, consultation for fashion items was not available, and product variety and selection options are restricted (Miller et al., 2000; Levin et al., 2003; Retief et al., 2003; Hammond et al., 2000; Brown et al., 2001). Nevertheless, the inability to actually see, touch, handle, or try on the garment before making the decision to buy is the most important factor that it is by far, a major concern for consumers.

To be competitive, the textile industry must be able to respond rapidly to consumer's requirements because it is neither the designer nor the manufacturer that dictates the rules of the game, as believed previously and sadly up until now, but the consumer is now in-charge. Traditional fashion providers from the textile industry must adapt to the changing customer requirements such as individualization of product consulting, event character of shopping and product customizing (Miller et al., 2000). The technology now exists to reinvent the textile-apparel supply chain to provide consumers with what they want, when and where they want it. Forsythe et al. (2000) believed that to provide value for online apparel consumers, it is essential to understand what motivates them to purchase and what prevents them from purchasing. Retief et al. (2003) suggested that the findings of research that focuses on the problems of online purchases of textile products could supply insights into the development of a guide for visual evaluation of textile quality, which could assist consumers on making decisions for purchasing textile products online. Fiore et al. (2003) believed that the effectiveness of website features might have significant financial impact on apparel companies competing against other apparel and non-apparel online retailers for consumer patronage and on total sales of the apparel industry.

1.1 Product customization for online fashion shopping

Today's consumers have increasingly high expectations where their individual needs and preferences are expected to be met. The expectation has come to include customized fit, and customized design (Hammond et al., 2000). According to Brown (2001), a system must have consumer-facing technology that allows consumers to use virtual tools to design the product they will consume, and this technology must allow supply-chain-wide seamless links so that the product design specifications created by the consumer can be shared across computer platforms, all the way up to the point of production or assembly. He also believes in tool that lets the consumer manipulate an image of the product they want to buy, adjusting it to their custom specifications where consumers can use to either select and assemble products or actually draw them to their liking. Haubl et al. (2000) support this and they suggested that the availability of such tools might lead to a transformation of the way in which shoppers make purchase decisions. The ability to customize style, fabric or clothing for fit could help increase on-line sales of fashionable garments that some apparel manufacturers and retailers have used the internet to go beyond their existing offerings, providing the consumer with a value-added internet experience such as customized on-line apparel catalogs and custom-fit clothing (Hammond et al., 2000).

By definition, customization permits users to make unique interface changes to create individual user experiences through tailor-made products and services (Mahfouz, 2005). It also implies a wide range

of personalized services, where in fashion business may range from a simple choice of fabric color, fabric type, accessories, to mass customization (e.g. fitting sizes to a large group of customers) and to made-to-measure (MTM) (e.g. garments tailor-made to fit a specific customer's body shape and preferences) (Kartsounis et al., 2003). Product customization allows the customers to decide on how and what the design should be. This is parallel to the Internet's concept where users could have what they want, how they want it and whenever they want it. A satisfied consumer, that enjoyed the process of selecting and customizing the products, may be encouraged to purchase the product.

1.2 Industry focus – the Malaysian Batik fabric

Batik fabric is one of the most decorated textiles from South East Asia, unique in its designs and colors. The Malaysian Batik is a common attire in Malaysia and worn by both men and women. Today, the popularity of the batik textiles does not only confine to the Malays but equally favored by the Chinese, Indians and the Natives.

The batik producers in the states of Kelantan and Trengganu often work outdoors in a makeshift studio with the white cloths stretched flat for drawing by hand using wax, before painting with vibrant dyes. The painted cloths then boiled to remove the wax and dried. This technique provides an unlimited range in design possibilities and artistic freedom because the source of patterns is from actual drawings. *Batik Cap* (block print batik) and *Batik Tulis* (hand drawn batik using *tjanting*) are two processes that represent the art of batik making. Except for the technique of using wax as the resist substance, these two processes are quite different from each other. A high level of skill and artistic sense is required to produce a yardage of quality batik fabric (Tourism Malaysia, 2005).

Batik designs range from floral motifs to swirls and abstract patterns. The Batik fabrics are either in four-meter cut for women clothing (usually for the Baju Kurung or Kebaya) or two-and-half meter for men's shirt. They are also made into scarves, caftans, skirts, and children's attire. Since each piece of batik cloth is crafted by hand, no two pieces are alike. However, most of the Batik manufacturers and marketers are not bold enough to experiment with new materials, designs and innovative in marketing their products. Nevertheless, there are still rooms for improvement for Malaysian batik makers to be more innovative and experimental in selling their products. They should be more open and should try to embrace new technology and new trend of doing business. Although not all, there are parts of the Batik design that could be customized to specific consumers' needs. Having this product customization mechanism may not solve the problem of lack of sensory and aesthetic information in online apparel and fabric shopping, but the process of customization may affect consumers' shopping experience that it may trigger their interest toward buying the products. Thus, it may not solve the tactile problem but it could and may somehow positively affect the intention to purchase Batik fabric online for some consumers.

2 THEORETICAL BACKGROUND

When buying online, there are differences in ways people make decisions to buy according to the products they are buying. For example, there are crucial aspects in which an apparel purchase decision differs from the purchase for other consumer products (e.g., books, music). Apparel purchasing decisions are closely linked to individual's feelings about themselves, thus can be laden with emotional factors that are less important in decisions to buy books, music, food and electronics (Hammond et al., 2000). A company trying to sell its clothing line has to take into considerations the emotions of its prospect customers and what factors would trigger the customers' emotion into deciding to buy the apparel.

Similar study by Fiore et al. (2003) had looked into the effects of image interactivity on responses towards retailer's websites. The image interactivity in the study was a system with the ability to create

and manipulate images of apparel products. The consumer was able to alter the design features, mix and match the apparels and view the apparel from different angles. The researchers were interested to see how those features affect the consumer's attitude towards the website, the will to purchase and return to the website, the probability to spend more time than planned on the website and the likelihood for the consumer to patronize the physical store after browsing the website. They found out from the experiment that those features did have impacts on the responses towards the retailer and that there were differences in approach responses between males and females. They suggested for future research to explore the mediating factors on image interactivity and approach responses. These mediating factors, taken from Mehrabian et al. (1974)'s environmental psychology approach, may include the emotional responses (pleasure, dominance and arousal), behavioral responses (approach and avoidance), cognitive processes (control), enjoyment, vivid experience and involvement.

Another similar research by Koufaris (2002) had tested an improved research construct, which was an integration of Information Systems (Technology Acceptance Model), marketing (Consumer Behavior) and psychology (Flow and Environmental Psychology). Koufaris had examined how emotional and cognitive responses to visiting a web-based store for the first time can influence online consumers' intention to return and their likelihood to make unplanned purchases. As a result, the integrated construct was validated as a nomological network. The study also provided views of the online consumer for better understanding of the online consumer behavior. Koufaris had suggested for future researchers to use the validated constructs for studies pertaining to online consumers with the addition of other mediating factors that may explain how and why consumer think, act and feel the way they do when shopping on the web.

This research has chosen the enjoyment factor due to the research model being used for this study, which was based on Koufaris (2002)'s integrated model. Koufaris believed, and proved, that shopping enjoyment can have a significant impact on the attitude and intention towards online shopping (2002). Enjoyment relates to intrinsic motivations to perform a behavior that is pleasurable in its own right (Vallerand, 1997) where the shopping process is fun or entertaining for its own sake. This was also supported by Jarvenpaa et al. (1997) that shopping enjoyment may have a significant impact on attitude and behavior on the web and can increase customer intention towards online shopping .

3 PURPOSE AND SIGNIFICANCE

The purpose of this study is to examine the effects of product customization on consumers' shopping enjoyment which may then affect the purchase of Batik fabric online. It aims to examine the effects of shopping enjoyment and perceived usefulness of the simulated website used in this study with consumers' intention to purchase Batik fabric online. It also tries to explore if Batik fabrics are actually sellable on the Internet after all. This research will be a valuable record of transformation towards the adoption of e-Commerce within the Batik industry. This e-market environment is a challenge to Batik retailers, with the hope that it may motivate them to revise their marketing strategies as to secure more potential customers, especially international customers.

Another significance of the research is in relevance to the Malaysian Batikguild's objectives, where it intends to enhance industry responsiveness to consumer demand in the global marketplace (Batik Guild, 2005). Due to the unique ability of the Internet where it can reach worldwide consumers in an efficient and timely manner, online marketing if properly developed and implemented with effective tools to aid the consumers' decision making, has tremendous potential as a strategy to enhance purchase of Malaysian Batik among rapidly growing online consumer worldwide. Effective websites with interactive tools could hopefully increase consumer preference for (and purchase of) Malaysian Batik, thereby allowing Malaysian local firms to capitalize on global market opportunities in the textile industry.

4 RESEARCH METHOD

4.1 Research Model

For this study, a modified version of Koufaris' integrated model is used. The model is shown below:

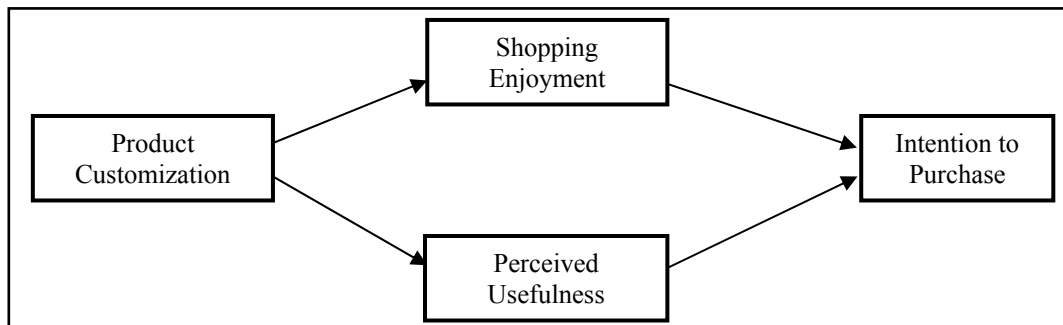


Figure 1: Research Model

In their Online Customer Trust Model, Koufaris et al. (2002) had introduced the Intention to Purchase and Intention to Return as the variables for Technology Acceptance Model (TAM)'s Behavioral Intention to Use. Koufaris then used the variable Intention to Return again in his Integrated Model but replaced the Intention to Purchase with Unplanned Purchases variable. The reason for the replacement was that Koufaris believed that consumers may enter a store planning to make specific purchases but they often end up making unplanned purchases (Koufaris, 2002). For this research however, the respondents testing the website in this study knew upfront that they are shopping for and only for Batik fabric. Thus, the researcher is using the Intention to Purchase instead of Unplanned Purchases variable.

This research drops the Intention to Return variable due to the fact that the respondents know that the test website used for the experiment is a mock e-commerce website. The response for Intention to Return might not be accurate, as the participants may have given 'mock responses' instead of real responses.

In the Integrated Model, Koufaris tested a multidimensional flow construct (Shopping Enjoyment, Concentration, and Perceived Control) for the environmental psychology factors. He found that for online consumers, variables Perceived Control and Concentration did not really explain online consumers' behavior (Intention to Return and Unplanned Purchases) but a simple construct of Shopping Enjoyment did. Because of that, this research will test Shopping Enjoyment variable to see if it has any relationship with the Intention to Purchase.

Davis had validated in his previous studies (Davis, 1989, 1993, Davis et al., 1989) that Usefulness is the primary determinant of behavioral intention to use a technology at the workplace with Enjoyment acting as secondary determinants. Usefulness of the technology is also expected to play a great role in predicting adoption of online shopping. Koufaris has proved this with the Integrated Model that Perceived Usefulness was more important predictor of intended system use than Perceived Ease of Use. There was no relationship between Perceived Ease of Use with the Intention to Return. Thus, this study eliminate Perceived Ease of Use variable and maintain the Perceived Usefulness variable to see its relationship with the Intention to Purchase.

Within the TAM framework, usefulness of the interactive media can be taken as reflecting more on the instrument aspects of shopping, while enjoyment embodies the hedonic aspect of shopping (Childers

et al., 2001). Some consumers may be shopping primarily for instrumental purposes, some may be enjoying the interactive media itself, thus both factors can ultimately affect the consumers' intention to make a purchase.

To determine the emotional and cognitive responses, Koufaris had tested several variables in his Integrated Model. The variables were Product Involvement, Web Skills, Value Added Search Mechanism and Challenges. He found that all the variables have positive relationships with Shopping Enjoyment and Concentration variables. Because of the positive results, these variables are not going to be tested again in this research, but a new variable is introduced. Because the relationships between attitude, behavior intentions, and actual use of TAM had been well studied and had even been tested for the use of WWW (Lin et al., 2000) and online shopping (Chen et al., 2002), this research introduce product customization mechanism to investigate its effects on online shopping for textile. Customization falls under the External Variables from Davis' TAM. This Customization option is a website feature introduced as an interactive tool in this study.

4.2 Experimental procedure

Data for the research was collected by conducting an experiment using a test website where a group of participants used the website to purchase Batik fabric. The website has never been published before. The web site showed a few samples of Batik designs from which the participants may choose. Participants would then be given customization options for the Batik designs. The options were color selection for design background and design motif, rearrangement of design motif (full, scattered, with or without borders), fabric material (Cotton, Chiffon, Crepe, Satin, Silk and Rayon) and fabric cut (2.5 meters or 4 meters). After that, the participants were asked to answer a structured questionnaire to measure their perception and experience using the website. Each participant was given a small token as an appreciation for completing the experimental process, which took approximately thirty minutes to finish.

4.3 Instrumentation and data collection

The research instruments consist of a survey questionnaire, which was divided into two parts. Section one (background survey) of the questionnaire was intended to gather the participants' demographic information, which includes gender, age, credit card ownership and previous online shopping experience. Section two of the questionnaire was constructed to gather the feedback from the participants on their experience with the test website. The questions in the survey were adapted or based from various previous researches (Adelaar et al., 2003, Ghani et al., 1991 and Venkatesh et al., 1996). In order to test the survey questionnaires' reliability, a Cronbach's alpha coefficient was computed. All four sets of test (product customization, shopping enjoyment, perceived usefulness and intention to purchase) scored alphas more than 0.70. These alphas established the reliability of the instruments used for this research.

In this study, an alpha level of 0.05 was used for tests of statistical significance, unless otherwise stated. The alpha level "is the risk set ... for rejecting a null hypothesis when it is true" (Salkind, 2000). If the observed significant value of a test is less than this value, $p \leq 0.05$, then the null hypothesis was rejected.

5 RESULTS AND DISCUSSIONS

Sample of 167 participants, consisting of graduate students from the Faculty of Information Technology and Quantitative Science at Universiti Teknologi MARA, were used in the experiment. The breakdown was 157 Information Technology students, eight Quantitative Science students and two Mathematics students, in which 99 (60 percent) of the respondents were male and 68 (40 percent)

were female. Subjects ranged from 20 to 49 years of age, with 94 percent being below 40 years old. More than three quarter of them were credit card owners and nearly 70 percent of the total respondents had past online shopping experience.

Responses to perceived usefulness of the system questionnaire statements showed that the mean was 3.825, which was in the positive level category (negative is ≤ 2.5 , neither is between 2.6 to 3.4 and positive is ≥ 3.5). This indicated that the respondents agreed that the test website was somehow useful for shopping Batik fabric online. The mean score for respondents' shopping enjoyment was 3.500 where suffice to say that the respondents were having an enjoyable shopping experience. The low mean score for shopping enjoyment (3.500) may be due to the fact that the customization options given in the test website were quite limited. The researcher believes that the score may get a little higher if there were more customization options with bigger range of colours to choose from for the Batik design.

A total of seven statements queried respondents' interest towards product customization and the mean showed a positive 3.857 and this was enough to say that the respondents were quite interested in using the mechanism. The low score may be due to the fact that product customization was relatively a new mechanism being introduced on the Internet. Especially for Batik fabric, customization of the Batik design has never been heard before. The researcher believes that because of these reasons the respondents' interest was quite low since they did not know what to expect from something that was very new to them. Nevertheless, the interest was there.

Responses to intention to purchase Batik online after using the test website showed a mean score of 3.55, which was also positive. This indicated that respondents were quite likely to purchase Batik fabric online.

Based on t-tests performed, there was a significant difference on shopping enjoyment across gender with p-value of 0.008. The female's mean score was 3.662, higher than the male's 3.419 which indicated that both male and female respondents have given positive response towards shopping enjoyment. This shows that female respondents were experiencing enjoyable shopping environment more than the male respondents did.

There was a significant difference on perceived usefulness across gender with the p-value of 0.011 where female respondents' mean score was close to 4.0 while the male's score was 3.740. This shows that female respondents thought the system to be useful more than the male respondents did. This might be due to the fact that females are more attached to Batik fabric than the males, thus the system matters more to the females than the males.

Age difference also does make a difference on the perceived usefulness of the system. The test showed a p-value of less than 0.05 which indicated a significant difference where respondents between 20 to 29 years of age score the highest mean (4.0065). This group of people feel that the system was useful to purchase Batik fabric online compared to two other age groups (30 to 39 and 40 to 49). This might be due to the trend and lifestyle of people in the younger age group which are more 'internet savvy'. This may also show that this group of people are open for new purchase 'trend' more than the 'older' age groups.

There was also a significant difference on respondents' perceived usefulness across past online shopping experience where p-value was 0.024 (< 0.05). Respondents with past online shopping experience scored a mean of 3.761, lower than those without past online shopping experience (3.955). This shows that those without past online shopping experience found the system to be useful to purchase Batik fabric. This might be due to the fact that they have no other online shopping experience to compare with and might be impressed with the test website. Those with prior online shopping

experience might have already experienced more advanced shopping experience previously that this experiment did not amuse them.

There was a significant difference on the intention to purchase across gender with the p-value of 0.002 (< 0.05). Female respondents' mean score was 3.765 while the male's score was 3.439. This showed that female respondents were having higher intention to purchase the Batik fabric after using the system. This might be due to the fact that females are more attached to Batik fabric than the males, thus the intention to purchase is understandably would be higher on the female part.

With no results of significant difference across gender, age and past online shopping experience on using product customization mechanism, it thus can be concluded that all respondents were similarly interested on using the mechanism. Table below summarizes the difference results from the data analysis above. The results rejected the null hypotheses for each variable:

Variable	p-value
Shopping Enjoyment across gender	0.008
Perceived Usefulness across gender	0.011
Perceived Usefulness across age	0.000
Perceived Usefulness across past online shopping experience	0.024
Intention to purchase across gender	0.002

Table 1: Results of significant difference

The Pearson correlation analysis was used to see the correlation between product customization and shopping enjoyment. The results (p-value <0.01) indicated that there was a highly significant correlation between product customization and shopping enjoyment. This means that the use of the product customization had somehow made the respondents' shopping experience enjoyable. The r-value (0.455) showed that there exists a moderate positive correlation between the two variables. By this, it shows that product customization mechanism does make shopping for Batik fabric enjoyable.

The second correlation result indicated that there was a significant correlation between product customization and perceived usefulness, where the p-value of 0.038 was lower than 0.05. However, the correlation is very weak with r-value of 0.161. This shows that the respondents' usage of the product customization correlates very weakly with their perceived usefulness of the system. This means that the interest of using the customization mechanism has very little impact on their perceived usefulness of the system.

The third correlation, between shopping enjoyment and intention to purchase, with p-value <0.01 showed of a highly significant correlation. This means that the respondents' enjoyable shopping experience have some positive impact on their intention to purchase Batik fabric online. However, the r-value (0.300) shows that there exists a weak positive correlation between the two variables. This means that although the enjoyable shopping experience does have some impact on the intention to purchase, it is however only a small impact.

The fourth correlation between perceived usefulness and intention to purchase showed that there is a significant correlation between respondents' perceived usefulness and intention to purchase, where the p-value (0.004) was lower than confidence level value (0.05). However, with r-value of 0.220, the correlation was found to be a weak positive correlation. The result indicates that there was a little relationship between perceived usefulness and intention to purchase, where the consumers may have a small tendency to purchase the Batik fabric online after using the system.

Figure below summarizes the correlation between variables according to the hypothesis model:

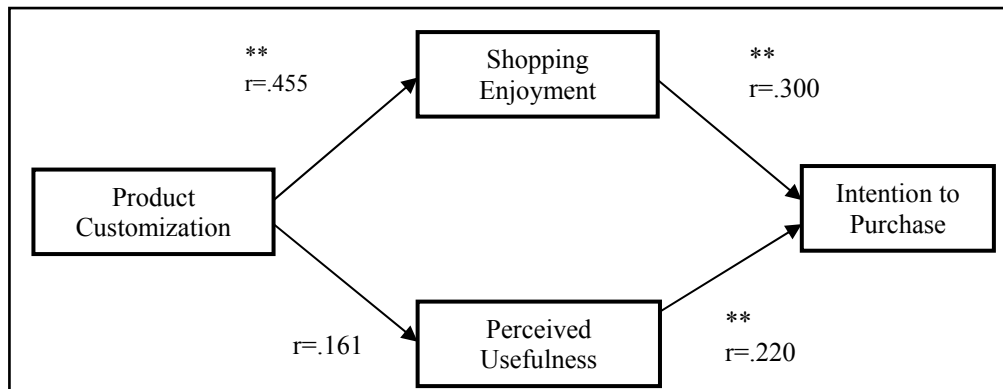


Figure 2: Correlation between variables

** Correlation is highly significant at the 0.01 level

* Correlation is significant at the 0.05 level

6 CONCLUSIONS AND FUTURE WORKS

6.1 Conclusion

From the study, it can be concluded that all of the respondents were interested on using the product customization mechanism and that it does make shopping for Batik fabric enjoyable although it has very little impact on their perceived usefulness of the system. They also agreed that the system was useful for purchasing Batik fabric. This may suggest that people are open for introduction of new purchasing trend and that they are interested to use product customization mechanism for purchasing Batik fabric. The mechanism, although does not affect heavily on their intentions to purchase, does have significant positive impact on their shopping experience which could only then affect their intentions to purchase.

The study also shows that the shopping experience was enjoyable to the younger group of females in the age range of 20 to 39. This group of people also have more tendencies to purchase the fabric than any other group. This may be due to the emotional and personal attachment to Batik (or fabric, in general), where it would be more with females than with males.

The study implies that the system is more suitable to be focused on female in the age of 20 to 39. This is quite understandable because the purchase of Batik would be more familiar to and associated with the females. As suggested by Kim et al. (2004), one of the significant predictors of online purchase intentions is gender and especially for clothing, female purchasers were found to be higher than male purchaser.

The results indicate that the respondents are interested on using the product customization mechanism and that it does make shopping for Batik fabric enjoyable although it has very little impact on their perceived usefulness of the system. They also found that the system to be useful for purchasing Batik fabric. Regardless of their gender, age, credit card ownership and past online shopping experiences, the results on the intention to purchase was surprisingly positive and the responses given indicate that they were interested towards the use of product customization for purchasing Batik fabric. Shopping enjoyment was found to be positively affecting the female respondents' purchase intention which in this case is parallel to Adelaar et al. (2003)'s impulse buying behaviour explanation that instant gratification (shopping enjoyment) may drive for impulse buying intention.

From this study, it is important to note that there were confounding relationships among product customization mechanism, shopping enjoyment (emotional response as the mediating factor) and

intention to purchase. In other words, the product customization mechanism affected the emotional response (shopping enjoyment) which then leads to the intention to purchase.

As a conclusion, it can be suggested that Malaysian consumers are open for new innovations and new purchasing trends. Traditions are no longer dictating how consumers do their shopping. In this Internet age, everything is expected to be sold on the Internet. Currently, all Batik merchandises can be found on the Internet except for Batik fabric sold in meters. With this study, it is proven that people are willing to purchase Batik fabric on the Internet. Batik marketers could use the findings from this study to re-analyse their business policies and strategies and that they should include selling Batik fabric on their business websites.

6.2 Recommendations for future work

Replication of this research to a fully functional or real-world web site research with more advanced product customization options, more samples of Batik designs for consumer to choose may allow for more accurate findings. Some respondents from this study suggested for the system to allow consumers to design their own Batik design from scratch. This may sound a bit too much but if that is what the consumers want then maybe it should be considered for future researches. The system should also include more information about the designs. Some respondents suggested for the system to include consultation and help on customizing the designs.

To validate the findings of this study more accurately, it is also suggested that a future research to use wider range of respondents, i.e. multi-national, multi-generations.

Finally, the issue of what other factors that may increase customer's intention to purchase Batik fabric online provides another direction for future research. In this study, it was hypothesized that the independent variable (product customization) will affect consumer's intention to purchase batik. However, several other features could be included on a website that may promote some degree of intention response. Thus, future research should attempt to uncover what other features in a website would elicit consumer's intention to purchase Batik from the website.

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