

**CUSTOMER CO-DESIGN AND FLOW EXPERIENCE OF  
CUSTOMIZATION PRODUCT PRODUCING PROCESS IN  
COMPUTER MEDIATED ENVIRONMENTS**

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## **ABSTRACT**

Mass Customization is broadly defined as customer joining the design process as a co-designer, and it meet the needs of each individual customer with regards to certain product features. Communities for co-design became a new and concerned issue in business practice recent years. Customer who prefer customization products are also increasing, numbers of studies showed satisfaction could be raise if customer join the design process of product or service, and the product or service will more fit for customer s' need.

Computer Mediated Environments (CMEs) provide users for communicate and interact electronically, the characteristics of synchronous and interactive allow designers or enterprises enhance to discover customer s' demands. Yet the interaction and communication on CMEs also improve understanding of customer s' thought and ideas. However, researchers more focus on discuss external motivation (e.g. system, technology, and communication tool et.al.) in the past but few paid attention on internal motivation (e.g. user motivation, feeling, emotion et. al.). Flow theory is used applied to explore user's intrinsic motivation recently. This study attempt to provide a better understanding for customer behavior on CMEs through subsume flow theory and customer satisfaction elements to explore the relationship between customer co-design and behavioral intentions. This study also demonstrates with a reliable and valid measurement, the questionnaire was pleased on website for voluntary participants. Results show there were significantly positive correlations between customer co-design and customer satisfaction, and highly significantly positive correlations between customer satisfaction and purchase intension. The analysis also indicated that flow experience had positive effect on customer satisfaction and purchase intention.

Keyword: Customization Product, Customer Co-design, Flow Experience, CMEs

## INTRODUCTION

### **Customization and Computer Mediated Environments**

Mass Customization is broadly defined as customer joining the design process as a co-designer, and it meet the needs of each individual customer with regards to certain product features. In Toffler's book "The Third Wave", Robert H. Anderson who is former Head of Information Systems of RAND Corporation, predicted that "the most creative thing a person will do twenty years from now is to be a creative consumer... Namely, you'll be sitting there doing this like designing a suit of clothes for yourself or making modifications to a standard design, so the computers can cut ne for you by laser and sew it together for your by NC machine" (Toffler, 1980).

Traditional marketing often views the customer as a passive participant in the exchange process until the time of the sale. Customers are still far from being a "creative customer", until people tend to discuss on mass customization more than a decade. Customization sees the customer as an active participant at every stage of the product development, purchase and consumption process and as the co-producer of the product and service offering (Wind & Rangaswamy, 2001).

More and more companies from different industries have successfully implemented the strategy of customization, some successful case as follow: DELL and Nike. The strategy of DELL provides customer have the opportunity to configure the computer by themselves. Customer could decide CPU, operation system and shape. Nike iD also allows customer design the color, material, special design and logo for themselves, and the price is 50 to 150 USD. And the Buildabear.com providing service that customer could choose dress, occupation and name for your bear toy. The toy will be send to customer with a bear birth certificate and its price is 23 to 60 USD. In Taiwan, III (Institute for information industry) indicate that there are almost 100 internet stores selling personalized product and predict that output value will be one billion NTD in 2009. However most of these cases were rely on Computer Mediated Environments (CMEs) to achieve the goal of mass customization, thus customer behavior in CMEs became an important issue for researchers.

Furthermore, CMEs provide users to communicate and interact electronically, the characteristics of synchronous and interactive allow designers or enterprises enhance to discover customer s' demands. Yet the interaction and communication on CMEs also improve understanding of customer s' thought and ideas. A number of research focused on mass customization discussed how to implement it as an efficient strategy

to companies (MacCarthy & Brabazon, 2003; Tseng & Jiao, 1997), it became popular in academia and was adapted as an e-business approach or a strategy of supply-chain management (Piller, Schubert, Koch & Möslein, 2005). However, few researches focused on customization products or view customer as a co-designer or customer co-design.

Furthermore, while considerable attention has been paid in the past to research issues related to motionless state of customization product process in CMEs (e.g. system, technology, and communication tool et al.), a literature on issues of dynamic state has emerged only very slowly and in a more scattered way. Flow theory is used applied to explore user's intrinsic motivation recently, and it to accompany a dynamic process. Thus, this study attempt to provide a better understanding for customer behavior on CMEs through subsume view customer as a co-designer, flow experience and customer satisfaction elements to explore the relationship between customer co-design and behavioral intentions.

### **Customer satisfaction and Purchase Intension**

Customer satisfaction can be defined as customers' evaluations of product or service with regard to their needs and expectations (Oliver, 1980). A great number of studies have been discussed and made an understanding of this concept in varied field.

According Wind and Rangaswamy (2001), in developing a strategy for customization, a company should be guided not only by customers' wants and needs that are best satisfied by customized offerings, but also its operational capabilities. In this paper, we also considered the interface and operating technology will influenced the customer satisfaction. So that we argued that the customer satisfaction should be classified into experienced satisfaction and operating satisfaction.

To understand customers' purchase intension is important because customers' behavior usually be leaded by their intention. Bai, Law, and Wen (2008) reviewed number researches and provide a discussion of behavior intention. They argued that a necessary measure in understanding customer loyalty, purchase intention has been considered indispensable in this loyalty construct. However, the questioned loyalty might spurious loyalty. Oliver and Rust (1997) asserted that loyalty should include cognitive, affective, cognitive (behavioral intent), and action (repeat purchase behavior) dimensions. And Day (1969) noted that intentional measure can be more effective than behavioral measure in capturing the consumers' mind because customers may make purchases due to constraints instead of real preferences. In addition, Ajzen and Fishbein (1980) finds little evidence that to examine consumers'

behavioral patterns, purchase intention has been used to predict actual behavior. Purchase intention is reportedly correlated to actual behavior. A lot of research works have been done in this field to seek for forecast customer behavior in the future. Above the literature review, customer satisfaction and purchase intention were dependent variables in this study.

## **LITERATURE REVIEW**

### **Customer co-design and CMEs**

In this customer-centric economy, more and more customers desire the opportunity to design their own product. Bateson (1985) asserted that customers might have the propensity to choose the “do-it-themselves” approach across many services, even when the service that might be more expensive or less convenient than traditional services. In most recent review, customers can play an active role in mass customizing process. They should not be viewed as just passive receptacles, but a source of productivity gains in service industry (Fitzsimmons, 1985; Lovelock & Young, 1979).

In some cases, when customers are highly involved in the design or development process, it is difficult to differentiate between producer and customer. Since the design and production is initiated by the customer, they become “prosumers” (Moffat, 1990), or “co-designers”.

In particular, consumers with great purchasing power are increasingly attempting to express their personality by means of an individual product choice, and mass customization economies are the result of the integration of customer information into value creation, and the on-demand manufacturing approach of mass customization (Piller & Müller, 2004). Further, Piller et al. (2005) said that individuality does not always mean one-to-one. On the contrary, collaboration among customers in online communities (and not directly with the online merchant) can help to overcome the mass confusion phenomenon of customized products.

In recent years new research studies have appeared that tackle this issue of CMEs and CMEs play an important role for the firms that providing customizing service. Enterprise and customer understanding each better through an instantaneous interaction. Randall, Tersiesch and Ulrich (2005) have pointed out that in order to exploit fully the potential of personalization, firms need to propose differentiated interfaces and web-based paths to e-customers and suggest customizing not only

products but also interaction process. Therefore, customer-firm interaction represents a core issue for value creation through personalization strategies and eventually for customer relationship development (Miceli, Ricotta & Costabile, 2007). Da Silveria, Borenstein and Fogliatto (2001) pointed out that customer-driven design is one of the enablers in the core of mass customization system. They maintain that successful mass-customizing strategy for firms involves offering suitable conditions for the customer “to initiate the design process of a product”.

About this kind activity of customer, it was represented in the pass researches by the different terms. For instance, Customer Co-design (Piller et al., 2005; Khalid & Helander, 2003); co-producer (Wind & Rangaswamy, 2001); customer participation (Dabholkar, 1990; Fitzsimmons, 1985); prosumers (Moffat, 1990; Toffler, 1980); do-it-themselves (Bateson, 1985). Dabholkar (1990) defined customer participation as the extent to which customers are involved in producing and delivering the product in previous study; and the participation of the consumers is required. They must adjust the timing of their demand to match the availability of service (Fitzsimmons, 1985). Later, Khalid and Helander (2003) defined that customer co-design describes a process that allows customer to express their product requirements and carry out product realization processes by mapping requirement into the physical domain of the product. In the lately research, most researches describes this behavior as “customer co-design”, thus we to continue the term in this study.

### **Customer co-design and Satisfaction**

Anderson and Srinivasan (2003) proposed that satisfaction in CMEs should be revised as e-satisfaction and they defined it as “the contentment of the customer with respect to his or her prior purchasing experience with a given electronic commerce firm” in the virtual environment.

Some research shown that co-design of apparels allow customers to feel more comfortable with the final product if customers found it easy to design (Ulrich, Anderson-Connell & Wu, 2003). Other research showed that matching customer’ requirements and co-creating products through web-based interaction broaden differentiation opportunities as well as profitability for online players (Miceli et al., 2007). According Godek, Yates and Yoon (2002), if customers think that they could better identify the appropriate products than the firm; customers’ participating would empower them to perceive more behavioral control, which would result in higher evaluations of products. We propose the following hypothesis:

**H1: There is a positive relationship between customer co-design and customer satisfaction.**

**H1a: There is a positive relationship between customer co-design and experienced satisfaction.**

**H1b: There is a positive relationship between customer co-design and operating satisfaction.**

### **Customer co-design and Purchase Intension**

Bai et al. (2008) tested a conceptual model of the impact of website quality on customer satisfaction and purchase intention. They found website quality influenced online visitors' purchase intentions via their satisfaction with website functionality and usability feature. In other words, online satisfaction mediates website quality. We propose the following hypothesis:

**H2: There is a positive relationship between customer co-design and purchase intension.**

**H3: There is a positive relationship between customer satisfaction and purchase intention.**

**H3a: There is a positive relationship between experienced satisfaction and purchase intention.**

**H3b: There is a positive relationship between operating satisfaction and purchase intention.**

### **Flow Experience**

Another important concept in this paper is Flow Theory. Flow theory is based on a public lecture presented by Professor Mihaly Csikszentmihalyi in Sydney on 17 March 1999. Players shift into a common mode of experience when they become absorbed in their activity. This mode is characterized by a narrowing of the focus of awareness, so that irrelevant perceptions and thoughts are filtered out; by loss of self-consciousness; by responsiveness to clear goals and unambiguous feedback; and by a control over the environment... (Csikszentmihalyi, 1975). Csikszentmihalyi and LeFevre(1989) suggest that flow consists of four components – control, attention, curiosity, and intrinsic interest. Csikszentmihalyi also noted that flow experience usually not happen in a relaxing or enjoyment situation. It happens during people in venture situation instead. It emphasis on a participate process with all one's strength.

People obtain happy through flow experience but not directly.

Recently some research applied flow concept into information technologies and customer behavior on internet related areas. Hoffman and Novak (1996) conceptualized flow on the web as a cognitive state during on-line navigation which is characterized by a seam less sequence of responses facilitated by machine interactivity. Besides, the on-line navigation is intrinsically enjoyable, accompanied and telepresence.

Hoffman and Novak (1996) indicated that key consequences of the flow experience for customers in hypermedia computer mediated environment (CME) are increased learning, exploratory and participatory behaviors, positive subjective experiences, and a perceived sense of control over their interactions. They also argued that Flow Theory to provide a better understanding of online communication behavior. Later, Piller et al. (2005) argued that co-design also lead to a complex, risky and uncertain buying situation that could deter customers from participating in this process. For customers, the decision to buy a customized product is basically the result of a simple economic equation (Franke and Piller, 2003): The higher the perceived (expected) benefit (returns) from product compared to the (expected) cost, the higher the likelihood of a customer employing mass customization. One of the returns is possible rewards from the design process such as flow experience or satisfaction with the fulfillment of a co-design task (Novak, Hoffman & Yung, 2000). Choi and Kim (2004) also found that people continue to play online games if they have optimal experience because flow state had impact on consumer loyalty.

Later, Chang and Wang (2008) examined online communication behavior, especially for the acceptance of online communication tools. They found that users' beliefs about interactivity, perceived ease of use, perceived usefulness, and flow experience are salient for online communication. Greater flow experience corresponds to a greater behavioral intention to use online communication tools. In addition, Shin and Kim (2008) proposed that flow can be seen as reinforcement that user intention is strengthened, directed, and moderated. Users knowingly and unknowingly have flow feelings, and it increases the intention to use. Users in a flow experience may be deeply immersed in the process of activities. We propose the following hypothesis:

**H4: There is a positive relationship between flow experience and customer satisfaction.**

**H4a: There is a positive relationship between flow experience and experienced satisfaction.**

**H4b: There is a positive relationship between flow experience and**

**operating satisfaction.**

**H5: There is a positive relationship between flow experience and purchase intention.**

Base on the literature review, a conceptual model with the hypothesis has been developed as Figure 1.

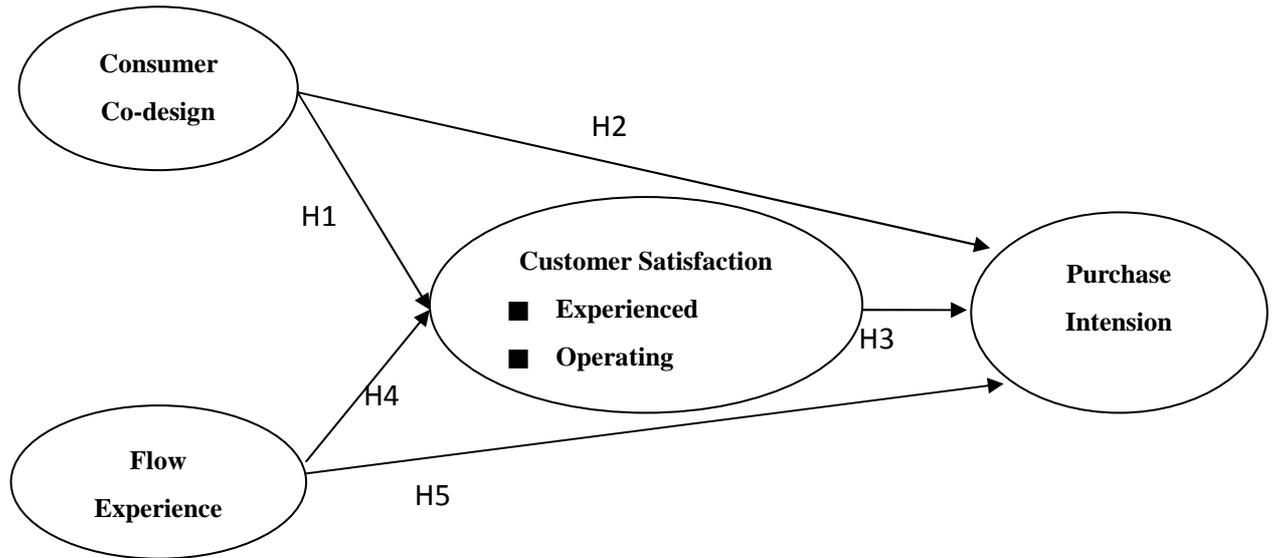


Fig.1 Conceptual model

## METHODOLOGY

### Manipulation of Customer co-design

A core concept of the study is customer co-design. The principle considered the product selecting in customization product design process as the stimulus in this study. The product category has to be one which available and customized. That means customer would like to join the customized process. So that, This research designed a survey to ask customer that what kind of product that you would like to join design process by yourself on internet; and the design functions are provided as picture selecting, magnifying, narrowing and gyrating. We provide fifty products as choose for the participants, including: t-shirt, cup, business card, notebook, loadstone, folder, helmet...et al.

The survey collected during 26<sup>th</sup> of December, 2007 to 30<sup>th</sup> of January, 2008. There were 108 of 269 participants choose t-shirt to be a customized product which they would like to design by themselves. The result showed that t-shirt could be a most

popular product that people would like to join the design process. Otherwise, a lot of websites offering custom service for clothing, such as “www.geelook.com”, “www.DesignAShirt.com” and “www.customink.com”. Thus, we chose t-shirt to be stimulus. Further, in order to provide a specialized mission purpose for participants. The study designed ten t-shirts of Nation Cheng Kung University (NCKU) as stimulus; and the design elements of these t-shirt also be separated. The ten t-shirt and design element were applied into two-phase of survey.

### Procedure and method

Survey was designed as two-phase for measure the reflections of customer co-design or not. In the first phase, the study provided ten NCKU t-shirts for choice (see Figure 2); each t-shirt was designed by the study. Participants were asked to choose one favorite t-shirt from the ten t-shirts then fill out the phase one survey.

In the second phase, the study constructed a test website as shown in Fig.3 for allow participants could freely design their favorite t-shirt. The experimental website is located on: [myweb.ncku.edu.tw/~p3696408/test.html](http://myweb.ncku.edu.tw/~p3696408/test.html), and provided functions as magnifying, narrowing, gyrating and restart. The design elements for selecting in the website were all separated from the ten NCKU t-shirt. Participants be allow to design a t-shirt by these elements and the time is no limited but will be counted. Participants also were asked to fill out a questionnaire after they finished design the t-shirt. Data were collected from 22<sup>nd</sup> of December, 2008 to 5<sup>th</sup> of January, 2009. After the formal questionnaire survey was completed, the collected data was analyzed by SPSS 12.0 statistical software.



Fig. 2 Ten NCKU t-shirts



Fig.3 Interface for participants design t-shirt

### Study sample and date collection

The research objects in this study are users of the internet. Further, the internet environment provided an effective interface and tool for customer to easy to be a co-designer in customization product process. And a website also set up for this study for participants that they could design their favorite t-shirt, and then the study could examine the responds of customer co-design. Therefore, the internet survey was hosted by [www.my3q.com](http://www.my3q.com), which is a specific online questionnaires website that allows people to respond voluntarily. This is a convenience (opportunity) sampling method and is particularly suited to research of users' behavior on the internet.

### Measurement

A survey instrument was designed to ask participants if and how their online purchase intentions might be influenced by customer co-design, customer satisfaction and flow experience. "Customer co-design" was decided by participants have designed the t-shirt and evaluated it. Cronbach  $\alpha$  for this five-item scale was 0.97. And the study also examines the participants respond which just chose from ten NCKU t-shirt. Cronbach  $\alpha$  for this five-item scale was 0.95.

The measurement on "Customer Satisfaction" was based on the studies by Anderson and Srinivasan (2003) and Oliver's (1980) multi-item scale to measure customer satisfaction in an e-retailing context and the result showed the item with highly

reliability and validity. Thus, this scale was modified to measure user' satisfaction in this study. Moreover, customer satisfaction be classified into experienced satisfaction and operating satisfaction in this paper in order to do a delicate examine. The customer satisfaction items were measured in a 5-point Likert type scale with "5" being "Very agree" and "1" being "Very disagree". The Cronbach  $\alpha$  for three-item scale of experienced satisfaction was 0.93; and the Cronbach  $\alpha$  for three-item scale of operating satisfaction was 0.72.

And the variable "Purchase Intentions" measurement according the study by Bai et al. (2008), they examined the impact of website quality on customer satisfaction and purchase intentions. "Purchase intentions" was examined in three -item 5-point type scale ranged from "5" being "Strongly agree" to "1" being "Strongly disagree" that reflects online visitors' behavioral intentions in now, the near future (6 months) and relatively long term (2 years). Cronbach  $\alpha$  for three-item scale was 0.87.

In addition, "Flow experience" items were developed based on the flow theory conceptualized by Hoffman and Novak (1996) and modified item by Chang and Wang (2008). Cronbach  $\alpha$  for five-item scale of flow experience was 0.89. Demographic data including gender, age, education and ever study in Nation Cheng Kung University were also collected in the survey. Thus, the reliability the measurement was good.

Further, the factor analysis also demonstrated strong factor loading. The detail information as: customer co-design (0.90), experienced satisfaction (0.88), operating satisfaction (0.66), purchase Intentions (0.79) and flow experience (0.70). Thus, most of the validity of the measurement was good.

## **RESULTS**

### **Sample demographics**

The online survey acquired 137 usable responses: 45 of respondents were male, 92 were female. Most of respondent's age was 20 to 29 years old and over educated beyond the level of a bachelor's degree and 24 respondents were major in design school. And 27 respondents were NCKU students or had graduated from NCKU.

### **Analysis and findings**

The results (Table1) of the full model demonstrate that customer co-design is positively associated with experienced satisfactions ( $t=11.66$ ,  $p<0.001$ ); and operating

satisfactions ( $t=3.14$ ,  $p<0.01$ ); H1a and H1b were supported. In addition, customer co-design and purchase intension ( $t=9.88$ ,  $p<0.001$ ), have been shown to be positively correlated with one another, and H2 was supported.

According Table 2, the result showed a clear and strong positively relationship between experienced satisfaction and purchase intension ( $t=12.18$ ,  $p<0.001$ ), H3a was supported. And operating satisfaction and purchase intension were also shown significantly related ( $t=5.13$ ,  $p<0.01$ ); H3b also be supported.

Table 1 Customer co-design of satisfaction and purchase intension regression analysis

Variables	Experienced Satisfaction (H1a)		Operating Satisfaction (H1b)		Purchase Intension (H2)	
	Standardized Coefficients( $\beta$ )	<i>t</i>	Standardized Coefficients ( $\beta$ )	<i>t</i>	Standardized Coefficients ( $\beta$ )	<i>t</i>
<b>Customer Co-design</b>	0.71	11.66***	0.26	3.14**	0.65	9.88***
<b>F value</b>	135.83***		9.86***		97.67***	
<b>R<sup>2</sup></b>	0.50		0.07		0.42	
<b>Adjusted R<sup>2</sup></b>	0.50		0.06		0.42	

\* $p<0.05$ ; \*\* $p<0.01$ ; \*\*\* $p<0.001$

Table 2 Satisfaction of purchase intension regression analysis

Variables	Purchase Intension (H3a)		Purchase Intension (H3b)	
	Standardized Coefficients( $\beta$ )	<i>t</i>	Standardized Coefficients( $\beta$ )	<i>t</i>
<b>Experienced Satisfaction</b>	0.72	12.18***		
<b>Operating Satisfaction</b>			0.40	5.13**
<b>F value</b>	148.34***		26.33***	
<b>R<sup>2</sup></b>	0.52		0.16	
<b>Adjusted R<sup>2</sup></b>	0.52		0.16	

\* $p<0.05$ ; \*\* $p<0.01$ ; \*\*\* $p<0.001$

The result (see Table 3) indicated that flow experienced were significantly associated with both experience satisfaction ( $t=14.76$ ,  $p<0.001$ ) and operating satisfaction ( $t=5.74^{***}$ ,  $P<0.001$ ). Thus, H4a and H4b were supported. And flow experience was highly correlated with purchase intension ( $t=10.93$ ,  $p<0.001$ ), H5 was also supported. The summary of hypotheses examined result reflected in Table 4.

Further, the study also adopted t-test to examine the difference of the price participants would like to pay for the t-shirt that they joined the process or not. The result showed that customer who joined the co-design would like to pay more to purchase customized t-shirt. The correlation coefficient of 0.78 was found to be statistically significant at 0.001.

Table 3 Flow experience of satisfaction and purchase intension regression analysis

Variables	Experienced Satisfaction (H4a)		Operating Satisfaction (H4b)		Purchase Intension (H5)	
	Standardized Coefficients ( $\beta$ )	<i>t</i>	Standardized Coefficients ( $\beta$ )	<i>t</i>	Standardized Coefficients ( $\beta$ )	<i>t</i>
Flow experience	0.79	14.76***	0.44	5.74***	0.69	10.93***
F value	217.85***		32.96***		119.56***	
R <sup>2</sup>	0.62		0.20		0.47	
Adjusted R <sup>2</sup>	0.62		0.19		0.47	

\* $p<0.05$ ; \*\* $p<0.01$ ; \*\*\* $p<0.001$

Table 4 Hypotheses testing result

<b>Hypothesis</b>	<b>Result</b>
<b>H 1: There is a positive relationship between customer co-design and customer satisfaction.</b>	Support
<b>H1a: There is a positive relationship between customer co-design and experienced satisfaction.</b>	Support
<b>H1b: There is a positive relationship between customer co-design and operating satisfaction.</b>	support
<b>H2: There is a positive relationship between customer co-design and purchase intension.</b>	Support
<b>H3: There is a positive relationship between customer satisfaction and purchase intention.</b>	Support
<b>H3a: There is a positive relationship between experienced satisfaction and purchase intention.</b>	Support
<b>H3b: There is a positive relationship between operating satisfaction and purchase intention.</b>	Support
<b>H4: There is a positive relationship between flow experience and customer satisfaction.</b>	Support
<b>H4a: There is a positive relationship between flow experience and experienced satisfaction.</b>	Support
<b>H4b: There is a positive relationship between flow experience and operating satisfaction.</b>	Support
<b>H5: There is a positive relationship between flow experience and purchase intention.</b>	Support

## DISCUSSION AND CONCLUSION

In early research, scholars who have focused on discussion mass customization (MacCarthy and Brabazon, 2003; Tseng and Jiao, 1997) more interested in how to implement it as an efficient strategy to companies. Only little research discusses the role of the customer within the co-design process (Piller and Müller, 2004; Piller et al., 2005). However, the more and more indication showed that customization product is the trend that could not be ignored and not only products but also the process should be considered. In recently research studies have appeared that tackle the issue of customization.

This study proposed the use of online communicates for collaborative customer as a

co-designer. On the theoretical front, the study makes several contributions to the literature. First, this study constructed a simulate environment that allows participants join the co-design process on CMEs. The experience of co-design and the usability of interface of CMEs were also considered in this study. So that, the customer satisfaction was distributed into experienced satisfaction and operating satisfaction. The above findings suggest that customer co-design in customization product in CMEs is an important factor to advanced customer satisfaction and purchase intention. Moreover, our study makes the investigation from static state to dynamic process; it not only discussed the external behaviors of customers but also explored the internal mind activities. The flow experience was significantly associated with both consumer satisfaction and purchase intension. Flow experience might be an important factor of customer to tend to use online communication tools to join the co-design process of customization product. On the application front, according an open question of survey, most participant responses indicated that join the co-design process is an interesting experience, and if this kind of service would be provided, they will willing to be adopting customers. However, some participants indicated that interface still some problem for using and this problem will reduce their willing to join or purchase this product, thus the usability of interface is also an influenced factor.

The present study enhances the previous studies' findings by providing a much more detailed examination of customer behavior of customization product producing process in CMEs. This research attempts to contribute a further understanding for establish customization service on online. Like other research efforts, this study is subject to some limitation. The study sample was taken online, the demographic profile of respondents showed that they were young, well educated. These samples might have a stronger intention to adopt new service or to have a customization product, and they should a veteran for internet. Thus the generalization of the results to other populations with different age and educational backgrounds may be limited.

Otherwise, an area of future research that should be considered is mediating or moderating factors, such as the type of products to be customized and the level of knowledge required proceeding with the customization. Further, the factor will influenced flow experienced occur will be also worth to discussion.

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