

The Impact of Product Innovation on Behavior Intention: The Measurement of the Mediating Effect of the Brand Image of Japanese Anime Dolls

Horng-Cherng Shiau

*Department of Business Administration, Far East University, No.49, Zhonghua Rd.,
Xinshi Dist., Tainan City 74448, Taiwan, ROC
E-mail: shiauhc@cc.feu.edu.tw*

KEYWORDS Loyalty, Sub-culture, Market Breakthrough, Mediating Effect, Product

ABSTRACT This paper aimed to investigate the correlation between product innovation and brand image, brand image and behavior intention, as well as whether or not product innovation affects the behavior intention through the mediating effect of the brand image. In this study, the consumers' perception of anime dolls in three aspects, namely, product innovation, brand image, and behavior intention were adopted as the research variables. Additionally, the consumers who had experienced buying Japanese anime dolls in major model specialty stores in Southern Taiwan were adopted as the research subjects. Then, an empirical study on the impact of the Japanese anime dolls on the consumer behavior in Asia was conducted. The brand image served as the mediating variable of product innovation and behavior intention and the results were measured. The results show that product innovation had a positive impact on the brand image, thus the hypothesis was partially supported; the hypothesis that the brand image had a positive impact on the behavior intention was established; the hypothesis that product innovation affected the behavior intention through the mediating effect of the brand image was also partially supported. This study therefore derived at the following conclusions: The mediating effect of the brand image indeed existed. Through a good brand image, product innovation had a certain extent of impact on customer loyalty and willingness to pay. Follow-up researches may include other factors that possibly affect product innovation, brand image, and behavior intention, such as sub-culture, situational factors, psychological variables, and so on, in order to understand the extent of impact the variables have on the research.

INTRODUCTION

Anime dolls are the best spiritual symbols that directly represent anime fans' longing for animation and comic roles. Thesis papers that cover empirical studies of the impact of anime dolls on consumer behaviors in Asia are scarce, and few thesis papers adopted brand image as a mediating variable for product innovation and behavior intention, or measured the results. In the past, Japanese animation and comic culture related product series had been very popular in Taiwan. Products such as CDs, books, games, foods, capsule toys (*GASHAPON*¹ in Japanese), small toys sold with food, and figures had been collectibles of animation enthusiasts. Anime dolls therefore must not be underestimated. The figure culture in Taiwan has always had fans in Taiwan and it is an important part of the youth's sub-culture and it is the best symbol for highlighting the animation and comic culture and directly representing the group of fan's longing for the animation and comic roles. In addition, this group of enthusiasts can have their dreams they otherwise would not have achieved from

the animation and comic roles and have the roles vividly relived in their lives. These youngsters are extremely fanatical about the beautiful shapes and postures of the figures. To them, buying figures means the ultimate collection of work of art.

Due to the network of information in recent years, Taiwanese consumers' buying of figures has greatly enhanced the popularity of the figures. Animation and comic or Animation and Comic Games, ACGs have been made into prototypes and sold by several manufacturers, such as *Good Smile*, *ALTER*, *KAITENDO*, *KOTOBUKIYA*,² and other leading manufacturers who have been authorized by the creators. Figma agented and issued by Japanese model maker Good Smile Company is one of the brands with the highest production of anime dolls within a short span of time. On average, 2-3 figures are made per month, and the *HATSUNE MIKU*³ and Vocaloid 3 singing synthesizing technologies.

The behavioral consequences of service quality. *Journal of Marketing*, 60(4): 31-46. series that took Japan by storm was also made by the same company. What magic do these lead-

ing manufacturers have to attract this group of consumer group? Is it the product innovation that has overturned the ideas in the past and has facilitated the creation of refined and adorable anime dolls that fascinate young people? Or is it the brand image of the enterprise that affected consumers' product behavior intention? The above mentioned questions are the main purposes of this study. This study aimed to explore the impact of anime dolls product innovation and brand image on consumers' behavior intentions, including the following three aspects: (1) To explore the impact of product innovation on brand image; (2) To explore the impact of brand image on behavior intention; and (3) To explore the extent of impact of product innovation on behavior intention through the mediating effect of brand image.

Literature Review and Hypothesis Inference

(1) Anime Dolls

Anime dolls refer to models of people and objects, or they may be models of cars, buildings, plants, insects, prehistoric life, or imaginary items. In Asia, the roles of animation and comic games (ACG) are prototypes to produce anime dolls worthy of collection.

In recent years, model figures have shown a new trend. That is, traditional model figures have been improved into movable (joints, body, and head) figures with replaceable parts, which have enhanced the playability and style/posture compared to the existing figures. However, figures made from polyvinyl chloride (PVC) are cheaper than figures, thus consumers generally find the prices acceptable. In addition, as products of this type are not easily damaged, they are more popular items of consumption. Currently, the more popular items include: Figma series and Yamaguchi Series of *KAIYODO* from Japan.

(2) Product Innovation

It is generally believed that innovation refers to an enterprise's effective utilization of resources and innovative production method to meet the needs of the market; it is the basic element that contributes to economic growth. Drucker (1985) defined innovation as: a variety of new, useful, and life quality-enhancing products or

services, such as novelty products, new services, new processes, new technologies, new raw materials, and new business models. Bart and Christopher (1991) believed that as far as companies are concerned, novelty products are new products, while the term "new product" is a type of enterprise innovation. Also, new products and product innovation are two terms that can be interchangeably used. Davila et al. (2006) mentioned that innovation is like an entrepreneurial function; it is a management process that requires specific tools, rules, and disciplines. Hence, relative to a certain product, enterprise, industry, or nation, any conditions different from the original can be deemed as product innovation.

(3) Brand Image

Dobni and Zinkhan (1990) deemed brand image as the brand concept of consumers. Moreover, brand image is generally a subjective perception, which is interpreted either rationally or sensually by consumers. In addition, brand image does not exist in product technologies, functions, and entities; rather, it is affected and shaped by related marketing activities, propaganda contents, and recipients' own characteristics. Park et al. (1986) believe that in the target market, brand image is based on corporate operation and sales activities, and brand image not only involves consumers' subjective awareness, but also create value for customers and organizations. Keller (1993) believes that brand image is consumers' brand awareness, which is reflected on the brand association in the memory of consumers. He further divided brand image into three types, namely, attributes, interests, and attitudes. In terms of interests, it is divided into: functional, symbolic, and experiential. Obviously, brand image is shaped by propaganda activities, marketing activities, and consumers' own characteristics. It represents the appearance of products in the hearts of the consumers, the product character given by consumers, and information prompt. Consumers infer product quality through the brand image, thereby eliciting consumers' buying behaviors.

(4) Behavior Intention

According to the Theory of Planned Behavior proposed by Ajzen (1991), behavior intention

is believed to be determined by the subjective probability of a particular behavior adopted by an individual, and it reflects the individual's willingness to implement a particular adopted behavior. This theory holds that behavior intention is the most direct factor that determines whether or not an individual will adopt a particular behavior. It is also believed that all the factors that possibly affect behaviors indirectly affect behavioral performances through behavior intention. On the other hand, under specific states, behavior intention is the best method to predict individual behaviors. Kuo et al. (2009) believe that behavior intention is a part of the buying behavior and that it is consumers' degree of awareness for a product. Therefore, when the manufacturer provides a product or service, the customer's behavior intention produced for the product will be clearly reflected. Hellier et al. (2003) believe that behavior intention is the judgment or opinion about buying a particular product again from the same enterprise under the premise of the current and possible conditions of an individual. Hence, behavior intention is said to be a subjective tendency for consumers to produce purchase targets, which is also an important indicator for predicting consumer behaviors.

(5) Product Innovation and Brand Image

Francis and Bessant (2005) believe that innovation has been widely regarded as a key element of the survival and development of a company. Tidd et al. (1997) believe that innovation and brand are general terms used to ensure an organization's survival and development. They allow the company to create new values for its assets. Obviously, product innovation and brand image complement each other. As far as the enterprise is concerned, product innovation aids in enhancing the brand image. In other words, if the enterprise has a higher brand image, the consumer's acceptance for the enterprise's product innovation will be higher as well (Liu et al. 2014). Thus, the study hypothesized that product innovation had a positive impact on brand image.

H1: The product innovation of Japanese anime dolls has a significantly positive impact on brand image.

(6) Brand Image and Behavior Intention

In the memory of consumers, brand image is the subjective awareness reflected from brand

association. However, a good brand image not only is an important consideration factor in decision making, but is also the key factor affecting consumers' purchase intention (Keller 1993; Kotler and Keller 2006; Jo et al. 2003). Keller (1993) mentioned that a better brand image will lead to higher purchases on the part of consumers, while the results of marketing tools can be enhanced as well. Macdonald and Sharp (2000) believe that in consumers' decision-making process, brand awareness plays the crucial role. Moreover, brand awareness can become part of the brand consideration combination through a high degree of awareness and facilitate consumers' higher purchase intentions. Therefore, consumers' brand image considerations indeed dominate their choices during a purchase. On top of that, the brand has a considerable influence on consumers' purchase decisions. Therefore, this study hypothesized that product innovation has a significant impact on consumers' behavior intention.

H2: The product innovation of Japanese anime dolls has a significantly positive impact on consumers' behavior intention.

(7) Product Innovation, Brand Image, and Behavior Intention

The most basic characteristic of product innovation is to change the basic attributes of products, thus attracting consumers to make purchases. Scholars believe that product innovation is one of the consideration factors affecting consumers when making a purchase (Boyd and Charlotte 1999). As for the relationship between product innovation and brand image, Tidd et al. (1997) believe that innovation and brand are general terms used by organizations in the pursuit of survival and development, which can enable them to create new values for their assets. On the other hand, according to a research by Aaker and Keller (1990), brands with awareness in the market form a good image in terms of consumers' perceived values and enhance consumers' trust for a product, thereby enhancing the purchase intention. Based on the descriptions of the relationship among the abovementioned three variables, the reasonable inference in this study is that:

H3: The product innovation of Japanese anime dolls affects the behavior intention through the mediating effect of brand image.

RESEARCH METHOD

Research Framework and Subjects

In this study, the study variables are the Japanese anime dolls the consumers purchased from model specialty stores and the relationship among consumers' product innovation, brand image, and behavior intention, so as to explore the impact of product innovation on brand image and brand image on behavior intention when consumers buy figures. In addition, the extent product innovation affected behavior intention through the mediating effect of brand image was explored. In this study, the consumers with experiences of buying anime dolls from Southern Taiwan were adopted as the study subjects. The questionnaires were distributed through the convenience sampling method. From the period of June 3rd, 2011 to August 3rd, 2011, the questionnaires were distributed to seven model specialty stores in Tainan and Kaohsiung, a total of 600 consumers. After eliminating 166 copies of invalid questionnaires, a total of 434 valid questionnaires were recovered, with the valid questionnaire response rate of 72.3%.

Variable Operation and Measurement

In this study, the questionnaire was adopted as the data collection tool. The questionnaire contents include: product innovation, brand image, behavior intention, and basic information. The variable operation and measurement methods are described as follows:

Product Innovation: The four dimensions of new products, service innovation, technological innovation, and market breakthrough put forward by Damanpour (1991) were adopted as the measurement indicators of product innovation. After appropriate editing, 16 questions were adopted as the measurement questions. 5-point Likert scale was also adopted in the measurement.

Brand Image: With the classification of Park et al. (1986) as the reference, brand image was divided into three dimensions: functional, symbolic, and experiential, which served as the measurement indicators of brand image. After appropriate editing, 12 questions were adopted as the measurement questions. 5-point Likert scale was also adopted in the measurement.

Behavior Intention: In this study, the five dimensions put forward by Zeithaml et al. (1996), including loyalty, transfer, willingness to pay, external responses, and internal responses served as the reference. After appropriate editing and in reference to the factor analysis results in the pretest, loyalty, willingness to pay, and shopping responses were adopted as the measurement indicators of behavior intention. 11 questions were adopted as the measurement questions, and 5-point Likert scale was adopted in the measurement.

RESULTS

Sample Characteristics

Among the study samples, the males comprised the majority, with 370 copies (85%), followed by the females of 64 copies (15%). As for the average age, the age group of under 22 years old comprised the majority (51%), followed by 22-29 years old (33%), which means the "under 29 years old age group" comprised 84% of the total population. In terms of marital status, most of the respondents who collected anime dolls were single (93%). As for the educational level, university (technical and vocational college) comprised the majority, with 315 copies (72%), followed by vocational high schools, with 90 copies (21%). In terms of occupation, most of the respondents were students, with 259 copies (60%), followed by the manufacturing industry, with 70 copies (16%), and serving industry, with 71 copies (16%). As for the average number of anime dolls purchased every year, those who purchased 5-7 figures comprised the majority, with 181 copies (41%), followed by 2-4 figures, with 147 copies (34%). In terms of average monthly income, the respondents with less than NT\$10,000 disposable income accounted for 48%, followed by NT\$20,001-40,000, which accounted for 27%. In terms of the selection of brand manufacturers, the majority of the respondents chose Good Smile, which accounted for 48%, followed by Figma (16%) and Bandai (15%).

Reliability and Validity Analysis

In this study, the Cronbach's α value was adopted to measure the consistency of the items in the respective dimensions. A higher α value indicates higher reliability. Usually, a α value of

higher than 0.6 and no less than 0.35 is required (Hair et al. 1998). From Tables 2-4, other than the α value of the market breakthrough that is slightly lower than 0.6, the remaining α values of the various dimensions are between 0.832 and 0.617, thus indicating the reliability of the questionnaire should be acceptable.

In terms of validity, the questionnaire contents in this study are theory-based. The questionnaire contents of past researches served as references, which were revised and discussed with practical and academic experts. Then the questionnaire pre-test was conducted and the questionnaire contents were amended again. Hence, there should be a considerable degree of

face validity and content validity. As for the construct validity, the marimax method in factor analysis was adopted in this study. Factors with eigenvalues of greater than 1 and the items of factor loads in the respective dimensions with absolute values of greater than 0.5 were extracted (Hair et al. 1998).

Table 1 shows that four factors were extracted from the product innovation scales, with the cumulative explained variance of 59.231%. The first factor dimension consists of six questions, with the eigenvalue of 5.295 and the explained variance of 33.095%. Factor 1 was named "technological innovation" and the factor 2 dimension consisted of four questions, with the

Table 1: Product innovation factor analysis

<i>Dimension</i>	<i>Question</i>	<i>Factor load</i>	<i>Eigen value</i>	<i>Cumulative explained variance (%)</i>	<i>Cronbach's α</i>
<i>Technological Innovation</i>	The brand manufacturer's product painting is more refined than that of other manufacturers.	0.798	5.295	33.095	0.832
	The brand manufacturer's brand product has a better texture than that of other manufacturers.	0.750			
	The brand manufacturer's R&D capabilities are stronger than those of other manufacturers.	0.693			
	The brand manufacturer's new products possess higher listing success rates.	0.669			
	The brand manufacturer regularly updates its production technology to manufacture products.	0.630			
	The brand manufacturer's product has functions and features other manufacturers lack.	0.565			
<i>Service Innovation</i>	The brand manufacturer's services are particularly comprehensive.	0.866	1.868	44.767	0.787
	The brand manufacturer's services put my mind at ease.	0.826			
	The brand manufacturer is particularly fast when handling customer complaints.	0.782			
	The brand manufacturer instantly updates the Internet services.	0.516			
<i>New Products</i>	The brand manufacturer whom I buy from often launch unique new products worthy of collection.	0.704	1.189	52.199	0.675
	The brand manufacturer often leads over other manufacturers in launching new products.	0.674			
	The brand manufacturer often launches products not available in the market.	0.641			
	The brand manufacturer's new products emphasize on product innovation.	0.614			
<i>Market Breakthrough</i>	The brand manufacturer attracts different consumer groups through large quantities of advertisements.	0.859	1.125	59.231	0.593
	The manufacturer readily updates its product functions to meet the market needs.	0.595			

eigenvalue of 1.868 and the explained variance of 11.672%; Factor 2 was named “service innovation”; the third factor dimension consisted of 4 questions, with the eigenvalue of 1.189 and the explained variance of 7.432%; Factor 3 was named “market breakthrough” and the fourth factor dimension consisted of two questions, with the eigenvalue of 1.125 and explained variance of 7.032%, which was named “new product.” The questions in the technological innovation, service innovation, market breakthrough, and new product dimension scales all had factor loads of greater than 0.5, thus indicating the scale content possesses a certain degree of construct validity.

As shown in Table 2, three factors were extracted from the brand image scale, the cumulative explained variance of which is 59.894%. The first factor dimension consists of five questions, with the eigenvalue of 4.691 and the explained variance of 39.089%. Factor 1 is named “functional”; the second factor dimension consists of five questions, with the eigenvalue of 1.454 and the explained variance of 12.120%. Factor 2 is named “symbolic”; the third factor dimension consists of two questions, with the eigenvalue of 1.042 and the explained variance of 8.685%. Factor 3 is named “experiential.” The factor loads of the functional, symbolic, and experiential questions all exceeded 0.5, indicating the scale content possessed a certain degree of construct validity.

As shown in Table 3, three factors were extracted from the behavior intention scale, with the cumulative explained variance of 54.608%. The first factor dimension consists of five questions, with the eigenvalue of 3.515 and the explained variance of 31.951%. Factor 1 is named “the willingness to pay”; the factor 2 dimension consists of four questions, with the eigenvalue of 1.436 and the explained variance of 13.054%. Factor 2 is named “loyalty”; the third factor dimension consists of two questions, with the eigenvalue of 1.056 and the explained variance of 9.603%. Factor 3 is named “shopping responses”. The factor loads of the questions in the willingness to pay, loyalty, and shopping responses dimensions also exceeded 0.5, thus indicating the scale content possessed a certain degree of construct validity.

The Correlation Analysis of Product Innovation, Brand Image, and Behavior Intention

In order to focus on the mediating effects of the overall brand image, the three dimensions of brand image (functional, symbolic, and experiential) in this study were combined into a single variable. Targeting the degree of correlation among the four dimensions of product innovation and brand image and the three dimensions of behavior intention, Pearson Correlation Analysis was conducted, so as to find the degree of correlation among the research dimensions. Ta-

Table 2: Brand image factor analysis

<i>Dimension</i>	<i>Question</i>	<i>Factor load</i>	<i>Eigen value</i>	<i>Cumulative explained variance (%)</i>	<i>Cronbach's α</i>
<i>Functional</i>	The brand product I purchased is well worth its value.	0.735	4.691	39.089	0.797
	The brand product's functions are superior.	0.729			
	The branded products are excellent in quality.	0.664			
	The brand possesses a good reputation.	0.553			
<i>Symbolic</i>	The brand product is realistic and moving.	0.534	1.454	51.209	0.755
	The brand product can meet my need for excitement.	0.730			
	The brand product is the leading popular brand in the market.	0.689			
	The brand product can reflect my personal style.	0.667			
<i>Experiential</i>	The brand product can meet my need to have multiple selection choices.	0.631	1.042	59.894	0.686
	The brand product is innovative and stylish.	0.574			
	The brand product brings me the feeling of joy.	0.852			
	The brand product can meet my need for pursuing pleasures in life.	0.714			

Table 3: Behavior intention factor analysis

<i>Dimension</i>	<i>Question</i>	<i>Factor load</i>	<i>Eigen value</i>	<i>Cumulative explained variance (%)</i>	<i>Cronbach's α</i>
<i>Willingness to Pay</i>	If a commemorative product is launched by the brand manufacturer, I will buy it, even for a higher price.	0.741	3.515	31.951	0.707
	Even if the price of the brand product I purchased has gone higher, I am still willing to buy it.	0.714			
	If the payment method is changed, I will still keep buying it.	0.649			
	Being able to buy the brand product at the current price makes me think I got a good deal.	0.588			
	Whenever the new model of a brand product is covered in the magazine, I go buy one quickly.	0.571			
<i>Loyalty</i>	I will recommend to others the brand product I have purchased.	0.774	1.436	45.005	0.739
	I propagandize the advantages of the brand product I have purchased.	0.741			
	This brand product will be my first choice when making purchases in the future.	0.713			
	I think the brand product I have purchased has the best quality among all other branded products.	0.633			
<i>Shopping Response</i>	I complain to others when the branded product I have purchased is defective.	0.808	1.056	54.608	0.617
	If a branded product is defective, I will inform the store about it.	0.750			

ble 4 shows that all the correlation coefficients were less than 0.7 and the variables all had a low to moderate positive correlation. However, the correlation coefficients of shopping responses and service innovation did not reach significance.

The Correlations among the Mediating Effects of Brand Image, Product Innovation, and Behavioral Intention

After conducting related preliminary analysis, in order to examine whether or not the me-

diating effect of brand image hypothesized in this study was supported, the hierarchical regression analysis was adopted for verification. First, in terms of collinearity analysis, the Variance Inflation Factors (VIF) of new products, service innovation, technological innovation, and market breakthrough on brand image were 1.627, 1.218, 1.479, and 1.261 respectively, which were all less than 10 (Neter and Kutner 1990); the Condition Indexes (CI) were 13.253, 15.371, 19.236, and 20.336 respectively, which were all less than 30 (Tacq 1997), thus indicating the prob-

Table 4: Correlation analysis

	1	2	3	4	5	6	7	8
1. New products	1							
2. Service innovation	0.360***	1						
3. Technological innovation	0.534***	0.365***	1					
4. Market breakthrough	0.438***	0.253***	0.310***	1				
5. Brand image	0.651***	0.405***	0.522***	0.374***	1			
6. Loyalty	0.240***	0.290***	0.299***	0.169***	0.404***	1		
7. Willingness to pay	0.520***	0.321***	0.416***	0.354***	0.632***	0.394***	1	
8. Shopping responses	0.182***	0.035	0.185***	0.125***	0.271***	0.232***	0.335***	1

***p<0.001

lem of linear overlap between the independent variables was not serious.

In terms of the mediating effects of brand image, this study adopted the recommendation of Baron and Kenny (1986) and used hierarchical regression analysis to verify the mediating effects. There were three conditions that supported the mediating effects, including: A. a significant relationship should exist between the independent variables and dependent variables, as well as the mediating variables and the dependent variables; B. a significant relationship existed between the independent variables and mediating variables; C. after inserting the mediating variables, the relationship between the independent variables and dependent variables should be weaker compared to before inserting the mediating variables.

In order to verify whether or not brand image was the mediating variable of product innovation and behavior intention, behavior intention (loyalty, willingness to pay, and shopping responses) were adopted as the dependent variables. First, the control variables (age and the average number of figures purchased per year) were inserted. In Model 1 (refer to Table 5), the number of figures purchased and brand image were significantly and positively correlated ($\hat{\alpha}=0.108$); in Model 3~5, age, the number of figures purchased, and loyalty were all sufficiently and positively correlated; in Model 9~11, age and shopping responses were significantly and positively correlated. It can be seen from the above that loyalty clearly had a correlation with the consumers' age and number of figures purchased, while the higher the age of the consumer, the greater the shopping response was.

Then, the independent variables of product innovation were inserted (new products, service innovation, technological innovation, and market breakthrough). The results show that in Model 4, 7, and 10, new products only had a positive impact on the willingness to pay ($\beta=0.329$), market breakthrough only had a positive impact on the willingness to pay ($\beta=0.139$); service innovation had a positive impact on loyalty and willingness to pay ($\beta=0.234$, $\beta=0.116$); technological innovation had a positive impact on the three dimensions of behavior intention: loyalty, willingness to pay, and shopping responses ($\beta=0.166$, $\beta=0.155$, $\beta=0.115$).

Finally, the mediating variables of brand image were inserted. Model 5, 8 and 11, each show-

ing the new product's β value of 0.003 (insignificant) was reduced to -0.177 (significant), 0.329 (significant) was reduced to 0.102 (insignificant) and 0.078 (insignificant) was reduced to -0.062 (insignificant); service innovation's β value of 0.234 (significant) was reduced to 0.184 (significant), 0.116 (significant) was reduced to 0.054 (insignificant) and -0.018 (insignificant) was changed to -0.057 (insignificant); technological innovation's β value of 0.166 (significant) was reduced to 0.098 (insignificant), 0.155 (significant) was reduced to 0.069 (insignificant), 0.115 (significant) was reduced to 0.062 (insignificant); market breakthrough's β value of 0.080 (insignificant) was reduced to 0.058 (insignificant), 0.139 (significant) was reduced to 0.112 (insignificant), and 0.077 (insignificant) was reduced to 0.061 (insignificant).

In Model 8, the four dimensions of product innovation totally conformed to the three conditions put forth by Baron and Kenny. That is, after inserting the mediating variables, the relationship between the independent variables and dependent variables should have been weaker compared to before inserting the intermediate variables. In other words, "product innovation affected behavior intention (willingness to pay) through the mediating effects of brand image" was fully supported; however, in Model 5, only the two dimensions of service innovation and technological innovation conformed to the three conditions put forth by Baron and Kenny. Therefore, the mediating effects of brand image were only partially supported. Finally, in Model 11, only technological innovation conformed to the three conditions put forth by Baron and Kenny (1986). So the mediating effects of brand image were only partially supported. Worth noting is that in Model 4, the impact of new products on loyalty was insignificant (0.003). That is, the consumers' perception of the new products did not affect their loyalty for the brand manufacturers. However, in Model 5, after inputting brand image, the impact on loyalty showed a negative and significant impact (-0.177), possibly because the brand manufacturers' rapid new product development and style variations have hindered the consumers' loyalty formation. Based on the above analysis, it shows that H3 in this study is partially supported.

In addition, Model 2 shows that new products, service innovation, and technological innovation had a significant and positive impact

Table 5: The hierarchical regression analysis of product innovation, brand image, and behavior intention

	Behavior intention										
	Brand image			Loyalty			Willingness to pay			Shopping responses	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Age	-0.025	-0.018	0.105**	0.150**	0.156**	0.009	0.024	0.033	0.226***	0.224***	0.229***
Number of Figures Purchased	0.108*	0.035	0.187***	0.161***	0.149**	0.077	0.027	0.011	0.024	0.007	-0.003
Product Innovation											
New products		0.493***		0.003	-0.177**		0.329***	0.102	0.078		-0.062
Service innovation		0.135***		0.234***	0.184***		0.116**	0.054	-0.018		-0.057
Technological innovation		0.187***		0.166**	0.098		0.155**	0.069	0.115*		0.062
Market breakthrough		0.058		0.080	0.058		0.139**	0.112**	0.077		0.061
Mediating variable-brand image					0.366***			0.462***			0.284***
R2	0.011	0.507	0.057	0.191	0.257	0.006	0.327	0.432	0.055	0.097	0.137
F value	2.370	72.940***	13.019***	16.736***	20.995***	1.392	34.463***	46.182***	12.449***	7.623***	9.612***

*p<0.05, ** p<0.01, ***p<0.001

on brand image ($\beta=0.493, 0.135, 0.187$), while market breakthrough had no significant impact on brand image ($\beta=0.058$). Therefore, H1 in this study is partially supported. In addition, with brand image as the independent variable, simple regression analysis was conducted on the three dimensions in behavior intention: loyalty, willingness to pay, and shopping responses. The results show that brand image had a significant and positive impact on the three dimensions of behavior intention ($\beta=0.409, 0.629, 0.275$). Therefore, H2 is also supported.

CONCLUSION

This study mainly explored the correlations among the variables for anime dolls; including product innovation, brand image, and behavior intention, as well as the mediating effects of the role of brand image. In addition, sampling was conducted from the model specialty stores in Tainan and Kaohsiung, so as to verify whether or not the dimensional relationship model could be established. Below are descriptions of the research results.

(1) Product Innovation Has a Positive Impact on Brand Image

Overall, new products, technological innovation, and service innovation under product innovation had a significant and positive impact on brand image, while market breakthrough had no significant impact on brand image. Therefore, H1 is partially supported. It can be seen that new products, service innovation, and technological innovation gave rise to consumers' "well worth its value" and "high quality" images. Product innovation indeed had a positive impact on brand image. In short, good product innovation allows the consumer to perceive the superiority of the product functions, which in turn enables consumers to gain a sense of satisfaction. The company on the other hand will have a sound brand image in the heart of the consumer. Sound product innovation greatly enhances the brand image.

(2) Brand Image Has a Positive Impact on Behavior Intention

Brand image has a positive and significant impact on loyalty, willingness to pay, and shop-

ping responses. This means when a manufacturer possesses a good brand image, it can have consumers' attention and become a part of the consumers' memory, which in turn aids in generating the willingness to pay for anime dolls. On the other hand, when a manufacturer boasts a brand image associated with good quality, prestige, symbol of status, and identity, the brand image will enhance the consumer's loyalty, but when the consumer finds a product well worth its value and has a high-quality brand image, when the product purchased from a store has a defect, the consumer will complain to friends or relatives or inform the store about it. Based on the above analysis results, it was found that the brand image of anime dolls had a positive impact and outcome on consumers' behavior intention. In short, a good brand image makes the consumer feel the branded product purchased is better than other branded products. Thus, the consumer will be willing to pay. Also, because of the consumer's trust for the brand, when a product is found defective, the consumer will complain to relatives and friends, or inform the store about it.

(3) The Mediating Effects of Brand Image

With the willingness to pay in behavior intention as the dependent variable, the four dimensions of product innovation will affect behavior intention through the mediating effects of the brand image; with loyalty as the dependent variable, service innovation and technological innovation are in conformity with the three conditions put forth by Baron and Kenny. Hence, the mediating effects of brand image are partially supported. On the other hand, with the shopping responses as the dependent variables, only technological innovation conformed to the conditions. Hence, the mediating effects of brand image are also partially supported. According to the abovementioned analysis results, in general, if an enterprise possesses good product innovation, it has to shape a good brand image in order to enhance the consumer's willingness to pay. If the enterprise possesses service innovation and technological innovation, the consumer's loyalty can be enhanced only through a good brand image. If an enterprise has good technological innovation and a sound brand image, the consumer's shopping responses become more apparent. Therefore, enterprises should give a special emphasis to customer complaints and complaint handling. In short, brand image possesses a certain degree of mediating effect between

product innovation and behavior intention. Therefore, to a considerable degree, the hypothesis in this study is supported. When anime dolls manufacturers engage in new product type R&D or manufacture, they should take into account ways to enhance the company's brand image, so as to elicit consumers' loyalty and willingness to pay.

RECOMMENDATIONS

Anime dolls are the mainstream and an important category among the derivative products, thus the huge business opportunities can not be ignored. Generally speaking, in addition to consumers' pursuit of refined quality, the most appealing part of figures lies in its "3-dimensional" and "realistic" feel. Both animation and comic are flat, but with a figure, the role the consumer loves is presented in 3-D form. The consumer can even play with it and touch it. The "realistic" feel makes the consumer fondle with it admiringly. The Melancholy of Haruhi Suzumiya series that swept Japan off its feet was manufactured and designed by Good Smile, which led to the high level of consumer acceptance for Good Smile and Figma brands. In addition, consumers' information sources are mostly from the Internet. Through constant and instant information updates, consumers can easily acquire first-hand latest information, thereby facilitating talks among consumers and achieving the word-of-mouth marketing effectiveness.

To sum up, we believe that the anime dolls manufacturers should strive for new product development and technological innovation. Those who lead over other competitors in terms of products and technology can enhance consumers' perceived brand image of the manufacturer through strengthened service innovation and market breakthrough. Ultimately, the consumer will develop loyalty for the manufacture, engage in purchases, and recommend the branded product to others.

LIMITATIONS AND FUTURE RESEARCH DIRECTION

Due to the time, manpower, and financial constraints, only the customers of the model specialty stores in two locations, namely, Tainan and Kaohsiung, were included in the sample survey. As for the sample statistics in this study, the occupation demographics mainly comprised of students (60%). The respondents' disposable

incomes were relatively low, so it was impossible to accurately calculate high-income groups' consumer behaviors. A possible reason for this is that the questionnaires were distributed on weekends when the students gathered in the model stores. If the questionnaires had been distributed in large exhibitions, such as animation and comic festivals, comic expos, etc., the sample collection reliability could have been increased.

In the future, the research scope can be expanded nationwide in Taiwan, or even in other countries in Asia for cross-border comparison and enhanced research reliability, which will in turn contribute understanding pertaining to consumers' opinions of Japanese anime dolls, the product innovation of peripheral products, and brand image on behavior intention. In addition, in-depth interview can be adopted to better understand the intrinsic and extrinsic factors of uncertainty taken into consideration by consumers when buying anime dolls, or other peripheral products, as well as their preferences for brands and recommendations. Follow-up researches may include other variables that likely affect product innovation, brand image, and behavior intention, such as sub-cultures, situational factors, psychological factors, and so on, thereby gaining an insight into the extent of impact the different variables have on the research.

NOTES

1. *GASHAPON* is a Bandai brand trademark widely used throughout the world for their capsule toys. It is also an open half of the plastic shell; inside is equipped with toys and instructions.
2. *GOOD SMILE*, *ALTER*, *KAITENDO*, *KOTOBUKIY* are the production of Japanese doll prototype and sold by several well-known manufacturers.
3. *HATSUNE MIKU* is a humanoid persona voiced by a singing synthesizer application developed and uses Yamaha Corporation's Vocaloid 2 and Vocaloid 3 singing synthesizing technologies.

REFERENCES

- Aaker DA, Keller KL 1990. Consumer evaluations of brand extensions. *Journal of Marketing*, 75(5): 135-144.
- Ajzen I 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50: 179-211.
- Baron RM, Kenny DA 1986. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51: 1173-1182.
- Bart C, Christopher K 1991. Controlling new products in large diversified firms: A presidential perspective. *Journal of Product Innovation Management*, 8: 4-17.

- Boyd TC, Charlotte HM 1999. The link between attractiveness of extra brand attributes and the adoption of innovations. *Journal of the Academy of Marketing Science*, 27: 306-319.
- Damanpour F 1991. Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of Management Journal*, 34(3): 555-590.
- Davila T, Epstein MJ, Shelton RD 2006. *Making Innovation Work: How to Manage It, Measure It, and Profit from It*. Upper Saddle River: Wharton School Publishing.
- Dobni D, Zinkhan GM 1990. In search of brand image: A foundation analysis. *Advances in Consumer Research*, 17: 110-119.
- Drucker PF 1985. *Innovation and Entrepreneurship: Practice and Principles*. New York: Harper and Row.
- Francis D, Bessant J 2005. Targeting innovation and implications for capability development. *Technovation*, 25(3): 171-183.
- Hair JF, Anderson RE, Tatham RL, Black WC 1998. *Data Analysis*. 5th Edition. Upper Saddle River, NJ: Prentice-Hall.
- Hellier P K, Geursen GM, Carr RA, Richard JA 2003. Customer re-purchase intention: A general structural equation model. *European Journal of Marketing*, 37(11): 1762-1800.
- Jo MS, Nakamoto K, Nelson JE 2003. The shielding effects of brand image against lower quality countries-of-origin in global manufacturing. *Journal of Business Research*, 56(8): 637-646.
- Keller KL 1993. Conceptualizing measuring and managing customer-based brand equity. *Journal of Marketing Research*, 57: 1-22.
- Kotler P, Keller KL 2006. *Marketing Management*. New Jersey: Pearson Prentice Hall.
- Kuo YF, Wu, CM, Deng WJ 2009. The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. *Computers in Human Behavior*, 25(4): 887-896.
- Liu CM, Lin KW, Huang CJ 2014. Effects of product development on operating performance in textile industry. *Anthropologist*, 17(1): 157-163.
- Macdonald EK, Sharp BM 2000. Brand awareness effects on consumer decision making for a common, repeat purchase product: A replication. *Journal of Business Research*, 48(1): 5-15.
- Neter J, Kutner MH 1990. *Applied Linear Statistical Models: Regression, Analysis of Variance, and Experimental Designs*. 3rd Edition. Homewood, IL: Irwin.
- Park CW, Jaworski BJ, Macinnis DJ 1986. Strategic brand concept-image management. *Journal of Marketing*, 50(4): 135-145.
- Tacq J 1997. *Multivariate Analysis Techniques in Social Science Research*. London: SAGE.
- Tidd J, Bessant J, Pavitt K 1997. *Managing Innovation: Integrating Technological, Market, and Organizational Change*. New York: John Wiley.
- Zeithaml VA, Berry LL, Parasuraman A 1996. The behavioral consequences of service quality. *Journal of Marketing*, 60(4): 31-46.