

Study on Sustainable Operation in Traditional Industry: Application of Buddhist Systems Methodology (BSM) and Statistical Analysis

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ABSTRACT

Under the trend of globalization and advancement of information technology, the operational patterns and industrial environments have changed, hence, traditional industries are facing the impact of the new era. Sustainable operation thus becomes their priority concern. This study treated consumers of traditional industries as subjects, and Buddhist Systems Methodology (BSM) and the quantitative statistical method were used to determine whether the effect of consumers' perceived marketing mix strategies of industry and brand association on purchase intention would influence sustainable operation of traditional industries. Based on convenience sampling, 900 questionnaires were distributed. After eliminating 93 invalid samples, there were 807 valid samples. The data were analyzed by descriptive statistics analysis, reliability analysis, correlation analysis, and regression analysis using SPSS12.0. Finally, 36 items in the qualitative questionnaire of BSM were used to collect organizational issues and key personnel's opinions through interviews, in order to discuss the views of stakeholders concerning traditional industries. Research findings are shown as follows: (1) price, channel, and promotion strategies in a marketing mix strategy influence consumers' purchase intention; (2) brand association respectively influences promotion strategy, price strategy, and consumers purchase intention; (3) brand association influences consumers' purchase intention; (4) according to BSM, sustainable development of traditional industries is limited by capital, labor force, and techniques, which are the problems encountered by those industries at present. Improvement of governmental policy and guidance are solutions to the problems faced by traditional industries.

Keywords: *Buddhist Systems Methodology (BSM), traditional industry, marketing mix strategy, brand association, purchase intention*

RESEARCH BACKGROUND AND MOTIVES

Due the rise of global economy and changes of operational environments in Taiwan, the OEM industry has encountered considerable difficulties. The added values of OEMs in design and manufacturing are facing bottlenecks due to the exploitation of brand customers. Under intense market competition, enterprises need to continuously introduce new and diverse products or services in order to satisfy consumers' changeable needs, while enhancing competitive advantages through brand strategy (Zhou et al., 2005). In consumers' purchase decision-making, in addition to strategic marketing, product quality, prices, and after-sale service, as proposed by retailers, brand also plays a critical role, and is treated as one of the sources of corporate competitive advantages (Aaker, 1996). Hence, increased added value of industry, proposals of new marketing strategies, and construction of brand or marketing strategy, have become the objectives and strategies of many OEMs. (Huang and Huang, 2009) Hence, exploring

how traditional industries respond to changing trends and determining the measures of sustainable operation is the motive of this study.

Based on the above research background and motive, this study aims to determine feasible plans for traditional industries to help enterprises achieving sustainable development. The research purposes are as follows:

- 1) To probe into the effect of retailers' marketing strategy on consumers' purchase intention;
- 2) To probe into the effect of brand association on consumers' purchase intention;
- 3) To explore the moderating effect of brand association on marketing mix strategy and purchase intention;
- 4) To explore the retailers' marketing strategy and brand construction by BSM of system thinking (Shen and Midgley, 2007a; Midgley and Shen, 2007b; Shen and Midgley, 2007c).

LITERATURE REVIEW

Based on the previous research motive and purposes, this study discusses the theories of system thinking and reviews previous literature concerning traditional industries, marketing strategies, brand association, and purchase intentions in order to enhance the theoretical framework of this study.

Current situation of traditional industries

Traditional industries have encountered many problems in recent years. The industrial development of Taiwan is influenced by the global economic environment. Moreover, due to the rise of high-tech industries, low level management knowledge, lack of talent cultivation, migration of labor and land, and inequality of governmental policies (Jin, 2000), traditional industries are facing long-term structural depression and expected continuous reduction of output, value of output, and profit (Chou et al., 1989). The economic system of Taiwan becomes M-shape (this is the difference between traditional industries and high-tech industries). Hence, how to help traditional industries achieve operational growth or sustainable operation is the focus of this study. In addition, among previous literature on traditional industries, some experts suggested product innovation, talent cultivation, technology in traditional industry, brand operation, creation of operational environment, and market or governmental policies for traditional industries (Sun, 2004). However, few studies discussed how traditional industries establish brands, recognize the importance of brands, or realize the importance of marketing strategies. Based on literature review, this study attempts to identify the problems and determine feasible plans for traditional industries.

Study on Systems Thinking and BSM

A system is a complex entity, which consists of components that are related, have mutual influence, and are depend on each other (Anderson and Johnson, 1997). System thinking is the general and superficial cognition of the system (Forrester, 1994), and it provides a kind of new language to reconstruct our thoughts. Past studies have categorized system thinking into Hard Systems Methodology, Soft Systems Methodology, and Critical Systems Methodology, in order to determine how system thinking is applied to management. Hard Systems Methodology (HSM) was developed by Checkland in 1981, and is a general term for various systems that can solve actual problems. It includes the following: 1) Operation Research (OR): it deals with internal organizational problems and sets and constructs a system model to find and test the best solution; 2) Systems Engineering (SE): it effectively use the

resources in the system. The main characteristic is to emphasize the importance of system analysis, and the ideal system design, as well as precise execution and operation (Jackson, 2000). Soft Systems Methodology (SSM) discovers problems through seven stages of a learning cycle. It is divided into Systems Thinking and Real World. Strategies are measured by the optimal plans of two dimensions. SSM cannot indicate overall problems, but it can systemize them (Checkland 1981; 1999). Critical Systems Methodology (CSM) was developed by Werner (1983) for solving complicated problems by effective tools. The effective tools mean to perceive different kinds of methodologies and methods through objective and fair critique. The advantages and disadvantages of theories and application are discussed and criticized. The phenomenon of the problems is compared according to the general recognition of social environments (Shen, 1999). One example of CSM is Buddhist Systems Methodology (BSM), which is developed by Buddhist thinking, and includes 12 items of the Eight-fold Noble Path (Zheng Jian (right view), Zheng Si Wei (right thinking), Zheng Yu (right speech), Zheng Ye (right action), Zheng Ming (right livelihood), Zheng Jing Jin (right diligence), Zheng Nian (right mindfulness), and Zheng Ding (right concentration), Zhong Tao (middle path), cause-condition-effect, space, and time (Midgley and Shen, 2007b). With three analytical steps of Systemic Intervention (SI), as proposed by Midgley (2000), 36 items are developed to diagnose and solve internal and external organizational problems. Interviews are also conducted to identify potential problems.

BSM is developed by Shen (2005), and the models of BSM include Model 1 (Figure 1) and Model 2 (Figure 2). Model 1 is categorized into Structure 1 (Figure 3) and Structure 2 (Figure 4). Structure 1 of Model 1 is based on Buddhist thinking, and includes the Eight-fold Noble Path, Zhong Tao, cause-condition-effect, space, and time, with a total of 12 items. Structure 2 is three analytical system steps, as proposed by Midgley (2000). The three steps have mutual influences, and they are boundary critique, judgment on appropriate theories and methods, and recommendations for improvement. Model 2 refers to three steps that are mutually influential: boundary critique, judgment on appropriate theories and methods, and recommendations for improvement. The above methods aim to diagnose and solve internal and external organizational problems. By interview, potential problems are found. According to the previous descriptions of methodologies of system thinking, this study adopts BSM proposed by Shen (2005) as the qualitative research method of this study.

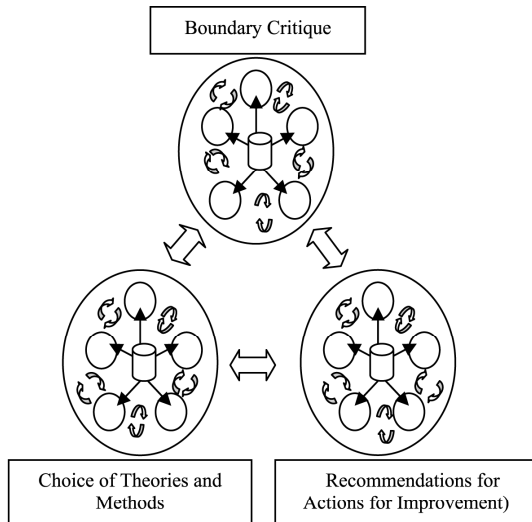


Figure 1: BSM Process of Intervention (Midgley and Shen, 2007)

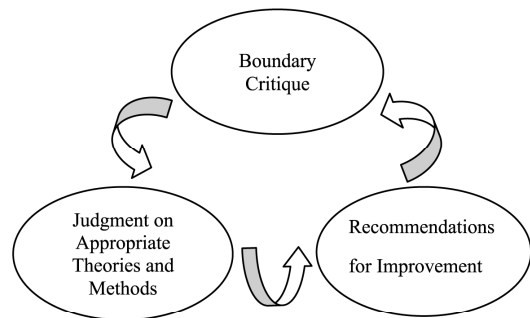


Figure 2: The essence of systemic intervention (adapted from Midgley, 2000: 132)

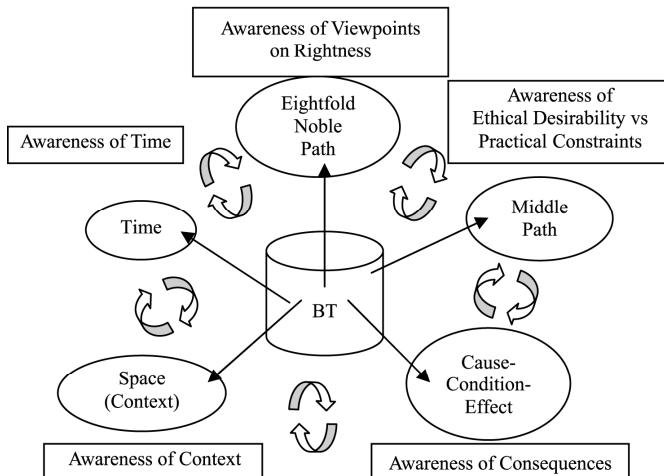


Figure 3: Model Structure 1-Five keys Buddhist concept

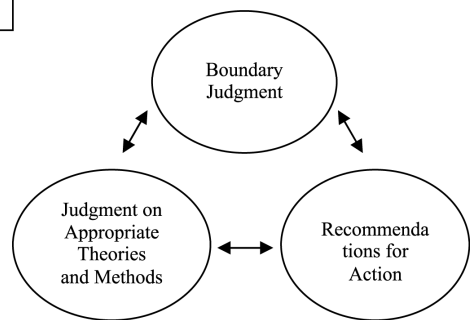


Figure 4: Model Structure 2- Three loops of SI

Study on marketing mix strategy

According to the definition of the American Marketing Association on marketing in 1985, marketing is to plan and execute the formation, pricing, promotion, and distribution of concepts, goods, and services. The purpose is to create an exchange that can satisfy individual and organizational objectives. Kotler (1997) and AMA (2004) defined it as follows: individuals or groups create valuable goods (products or services), and communicate or deliver value to customers. By exchange with others, they satisfy social demands and needs; by exchange of goods and services, they exchange value. They operate customer relationships in order to benefit organizations and stakeholders. Zhou (1999) suggested that marketing refers to the various activities that satisfy customers' needs, result in two parties' transaction, and accomplish organizational goals. Chiou et al. (2003) proposed an important base of marketing: product development, marketing positioning, product, price, channel, and advertising strategy in marketing. McCarthy (1960) further divided marketing strategy into Product, Price, Promotion, and

Place, which is called the 4P theory. Product is defined as the goods or labor provided by a company to target markets to result in consumers' attention, acquisition, use, or consumption, and satisfy their desire and needs. Price is the money that the customers pay for the goods, and pricing should be based on different types of markets and price goals of products. Place means that the products are transferred from producers to consumers, and the main purpose is to avoid the barriers of time, place, or ownership between producers and consumers. Target customers can easily purchase the products. Promotion is to show advantages of products and convenience of target customers to purchase the products. It the implementation of the communication process (Kotler, 2000). Hence, in order to probe into obstacles encountered by traditional industry, this study adopts the 4P theory on the basic elements of marketing.

Study on brand association

Aaker (1991) suggested that brand association means consumers associate memory regarding all things about a brand, including association of names or symbols of brands. The association helps consumers to acquire and deal with information, conduct product differentiation and positioning, create a positive attitude, and enhance purchase. Brand association can be divided into product association and organization association (Keller, 1993; Biel, 1992; Keller, 1998; Chen, 2000). In an image of brand association, product association is divided into product function association and non-product function association. Product association is divided into "function attributes" and "non-function attributes" (Wang, 1997; Shih 1998). Association of "function attributes" means kinds, attributes, and uses of products. Association of "non-function attributes" includes endorsers, users, relative prices, customers' benefits, and intangible attributes (Aaker, 1991). Based on the above, this study divides brand association into two categories. The first is product association. When consumers purchase products, they have association. In other words, when consumers purchase or associate with products, they can immediately associate it with the importance of brand. The second is non-product association. Consumers associate it with a positive image of brand by satisfying mental needs, and further associate it with quality guarantee, service guarantee, upgrading of personal position and image, and positive feeling of use by brand.

Study on purchase intention

Intention means subjective probability of individuals' specific behavior, which concept is extended as purchase intention, meaning that the probability to have a certain purchase (Fishbein and Ajzen, 1975). According to the definition of Schiffman and Kanuk (2000), purchase intention means to measure the probability of consumers' purchase of a certain product. With a stronger purchase intention, the probability of purchase is higher. In addition, purchase intention can predict consumers' actual behavior. It refers to the possibility that consumers have the intention to buy the products (Morwitz and Schmittlein, 1992; Dodds *et al.*, 1991). Based on previous studies, purchase intention means the probability of individuals' intention of purchase and transaction. Hence, Morwitz and Schmittlein (1992) suggested that intention can predict behavior. Therefore, in the long term, purchase intention in practice has been the most precise item for marketing personnel to predict customers' purchase behavior.

Study on relationship between dimensions

In literature review, the implementation of a marketing strategy influences consumers. According to this study regarding 4P marketing, different products can result in consumers' attention, acquisition, use, or consumption, and satisfy consumers' desire to purchase the product. In addition, pricing according to types of market influences consumers' purchase intention. In the factors of purchase, convenience of

location is one of the factors to enhance consumers' purchase intention. Promotion is the most common and key factor in marketing strategy for consumers' purchase. Therefore, marketing mix strategies significantly influence consumers' purchase intention (Kopalle and Lehmann, 2006; Chen, Monroe and Lou, 1998). Based on previous literature, when retailers propose marketing mix, consumers' purchase intention is enhanced. Thus, this study proposes hypotheses as follows:

H1: *Retailers' proposal of marketing mix strategy influences consumers' purchase intention*

H1-1: *Retailers' proposal of product strategy influences consumers' purchase intention*

H1-2: *Retailers' proposal of price strategy influences consumers' purchase intention*

H1-3: *Retailers' proposal of channel strategy influences consumers' purchase intention*

H1-4: *Retailers' proposal of promotion strategy influences consumers' purchase intention*

The effects of various factors on consumers' purchase decision-making are very complicated. Therefore, among the factors of purchase intention, besides consumers' product knowledge, brand is another key factor. When consumers lack product knowledge, they will purchase goods according to clues of products and their perception. Brand image of products and brand association becomes critical in purchase decision-making. However, brand not only differentiates products as guarantee of quality, but also enhances consumers' beliefs, affection, and purchase intention (Chiu, 2006). In addition, when brand image is positive for consumers, individuals' positive impression, image, or association, as obtained by experience or memory, enhances their purchase intention (Lin et al., 2007; Hu and Ho, 2008; Zhang, 2008). According to literature review, consumers' purchase of products and non-products influence importance of consumers' association brand, and association brand increases their purchase intention. Hence, this study proposes hypotheses, as follows:

H2: *Brand association influences consumers' purchase intention*

H2-1: *Product association of brand association influences consumers' purchase intention*

H2-2: *Non-product association of brand association influences consumers' purchase intention*

Development of marketing includes two key factors: relationship marketing and construction of brand. Marketing strategy and brand association influence purchase intention. Thus, this study concludes the following: (1) Kamins and Marks (1991) suggested that consumers have higher brand attitude and brand intention regarding familiar products with positive brand image. Thus, brand image is extremely critical for consumers' purchase; (2) construction of brand asset can rely on marketing activities (Keller, 2001). This study attempts to determine if, in traditional industry of brand association, retailers' proposal of marketing mix influences consumers' purchase intention or increase consumers purchase intention. However, the development of traditional industry lacks the construction of brand, and industry cannot expand or maintain operations. This study includes consumers' brand association to determine if brand association influences the effects of the marketing mix strategy on purchase intention. Hence, this study proposes hypotheses as follows:

H3: *Brand association influences retailers' marketing mix strategy and enhances positive correlation between marketing mix strategy and consumers' purchase intention.*

H3-1: *Product association of brand association influences retailers' product strategy of the marketing strategy, and enhances the positive correlation between product strategy and consumers' purchase intention.*

H3-2: *Product association of brand association influences retailers' channel strategy of the marketing strategy, and enhances the positive correlation between channel strategy and consumers' purchase intention.*

- H3-3:** Product association of brand association influences the promotion strategy of retailers' marketing strategy, and enhances the positive correlation between promotion strategy and consumers' purchase intention.
- H3-4:** Product association of brand association influences price strategy of retailers' marketing strategy, and enhances the positive correlation between price strategy and consumers' purchase intention.
- H3-5:** Non-product association of brand association influences retailers' product strategy of marketing strategy, and enhances positive correlation between product strategy and consumers' purchase intention.
- H3-6:** Non-product association of brand association influences retailers' channel strategy of marketing strategy, and enhances positive correlation between channel strategy and consumers' purchase intention.
- H3-7:** Non-product association of brand association influences the promotion strategy of retailers' marketing strategy, and enhances positive correlation between promotion strategy and consumers' purchase intention.
- H3-8:** Non-product association of brand association influences the price strategy of retailers' marketing strategy, and enhances positive correlation between price strategy and consumers' purchase intention.

RESEARCH METHOD

Research Structure

The research framework is divided into qualitative BSM and the quantitative method. First, qualitative BSM is based on interviews. The research framework is as shown in Figures 1~4. According to the research purposes, research questions, and literature review, the quantitative framework of this study is as shown in Figure 5. Retailers' marketing mix strategy influences consumers' purchase intention, while consumers' brand association influences the effect of a marketing mix strategy on consumers' purchase intention.

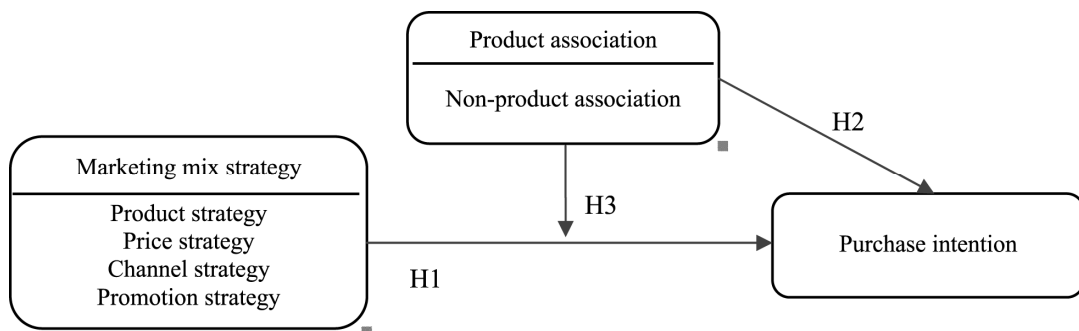


Figure 5: Research framework

Research Subjects and Sampling

The qualitative method in this study is based on the "boundary critique" of Model 1 of BSM. Interviews were conducted according to 12 items of boundary critique in BSM, in order to identify problems and recognize the obstacles, problems, and situations within organizations. Then, organizational diagnosis can be performed (Shen and Midgley, 2007c; Shen, 2005). The interviewees were owners of traditional furniture retailers. The time and subjects of interviews are as shown in Table 1:

Table 1: Subjects' basic information

Codes of subjects	Titles	Date of interview	Time of interview
No.1	Owner	1-day interview, August 11, 2012	About 3 hours
No.2	Owner	1-day interview, August 12, 2012	About 2.5 hours
No.3	Owner	1-day interview, August 16, 2012	About 1.5 hours
No.4	Owner	1-day interview, August 28, 2012	About 2 hours
No.5	Owner	1-day interview, August 30, 2012	About 3.5 hours

In quantitative study, a questionnaire survey was conducted on consumers who have purchased furniture. At the pretesting stage, 50 questionnaires were distributed by convenience sampling to consumers who had purchased furniture. In the formal survey, 900 questionnaires were distributed by convenience sampling. After eliminating 93 invalid samples, there were 807 valid samples, with a valid return rate of 89.66%.

Operational definitions and measurement of quantitative variables

According to the research framework of the effect of brand association on the marketing mix strategy and purchase intention in literature review, this study designed a questionnaire by conceptual framework to measure the variables. The measurement was based on a Likert 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). In the first section, the sub-dimensions of the marketing mix strategy are product strategy, price strategy, channel strategy, and promotion strategy. It attempts to determine if, when purchasing furniture, subjects' purchase intention is influenced by the marketing mix strategy. The items are revised according to Kolter (1994), Hsiao (2004), and Chen (2009). The second section is brand association, and it attempts to determine if, when purchasing furniture, subjects' purchase intention is influenced by brand association. The items are revised according to Keller (1993). The third section is purchase intention, which attempts to determine the factors to enhance purchase intention when subjects purchase furniture. The items are revised according to Zeithaml (1988), Dodds, Monroe, and Grewal (1991), and Neese and Taylor (1994). The fourth section is demographic variables, including age, educational level, personal average monthly income, occupation, and residential locations.

Analytical method

Qualitative analytical method

In this study, the qualitative method was based on BSM proposed by Shen (2005) and interview results. The subjects were owners and employees of the traditional furniture industry. Based on the effects assessed by traditional furniture retailers, this study discussed the obstacles encountered by traditional industry, and attempted address the operational problems of traditional industry. The 12 items are shown as follows:

- (1) How do you treat, deal with, or solve the cases (activities) or problems from the past to the present?
- (2) Regarding the problems from the past to the present, do you find that there are inappropriate ideas involved?
- (3) Regarding the problems from the past to the present, do you find that there is inappropriate language involved?
- (4) When dealing with problems or planning the cases, did you have any inappropriate behavior?
- (5) Are you more concerned about your own benefits or the public's?
- (6) When dealing with problems or making plans, were you lazy and indifferent or did you try to escape from things?

- (7) When dealing with problems or making plans was there misunderstanding about yourself or others?
- (8) When dealing with the problems, have you used Buddhist thoughts or disciplines?
- (9) When you deal with things from the past to the present, do you encounter contradictions or conflicts between morality and reality?
- (10) When you deal with things from the past to the present, do you understand or treat the issues by cause condition and effect?
- (11) When you deal with things and make plans from the past to the present, do you consider the related culture or location?
- (12) When you deal with things and make plans from the past to the present, do you consider factors of time?

According to these 12 items, this study conducted qualitative analysis.

Quantitative analytical method

In order to confirm the propriety of scales adopted by this study, SPSS12.0 was used to analyze the questionnaire results and validated the relationships among the variables. First, by factor analysis, this study adopted the best loading of different factors in the items and conducted internal consistency analysis (Cronbach's α) of all items in the factors, as well as validity analysis. Basic descriptive statistical analysis was conducted on the items of scales and total scores of sub-scales. Then, pair correlation analysis of the main variables was conducted to provide reference for the subsequent regression statistical analysis. In order to probe into effect of marketing mix strategy on brand association and purchase intention, this study conducted regression analysis and multiple regression analysis.

RESEARCH ANALYSIS

Descriptive statistics analysis, reliability analysis, correlation analysis, and regression analysis were conducted using SPSS12.0. BSM was used to collect organizational problems and important members' opinions by qualitative interviews in order to determine the opinions of the subjects.

Qualitative research analysis

This study collected qualitative data by 12 items of BSM and in-depth interviews. The content of interviews were generalized according to the 12 boundary critique items of BSM. Hence, systems thinking can be discussed in the following.

(1) Environments encountered by traditional industries

The first issue encountered by traditional industry is changes of environmental factors. Wang (2003) suggested that operational environments in Taiwan have significantly changed, and costs of production factors, such as land and labor, are increasing. In addition, with the competition from developing countries and China by their low-cost labor and land, Taiwan loses the comparative profits of products in the market. Strategic planning of transformation and upgrading of enterprises should be improved, as it influences their business growth (Chin, 2000). In this study, regarding obstacles encountered by traditional industry, the subjects mentioned environmental factors:

"In recent years, more than ten plants went out of business. Because of the rise of China, there were more competitors and labor of OEM moved to China." (Subject 1)

"We cannot lower the cost or compete with other firms. Since labor in China and Southeast Asia is cheap and they have spatial land, we cannot lower the cost to compete with other enterprises" (Subject 2)

“Foreign governments have policies to protect industries. However, the government in Taiwan lacks policies of guidance or support. Only powerful policies and laws for traditional industry can guarantee the sustainable development of traditional industry.”(Subject 3)

According to the descriptions of interview subjects, the key factor of the negative growth in traditional industry is economic environment. How to deal with environmental factors? According to subjects’ interview content, implementation of good policies is required to result in positive growth of traditional industry.

(2) Difficulty of product marketing and urgency of brand construction

From past to the present, the main problems encountered by traditional industry are mostly caused by environmental difficulties. Hence, many experts and scholars proposed solutions to the environmental issues, such as migration of labor, which results in differences of competition costs. Lin (2001) suggested that, regarding human resources, traditional industry can consider talent cultivation to enhance competitiveness with other enterprises. By interview, this study generalizes the importance of product marketing and construction of brand.

Subject 4 suggested the sales of products, as follows, *“in order to sell the products to consumers, I introduce them as new ones, which are different from others.”*

Subject 1 suggested the sales of product prices, *“in the furniture industry, the professionals usually manipulate the consumers”*

Subject 3 suggested the sales of product prices, *“prices in the furniture industry are not fixed, as the labels in 7-11. Thus, the prices of the furniture industry can be changeable.”*

Subject 2 suggested the sales of product channels, *“in the past, we distributed goods to one firm after another by truck. Nowadays, the shipping companies provide delivery services, which saves time”*

Subject 3 suggested the sales of product channels, *“in recent decades, the Environmental Protection bureau started the recycling of second-hand furniture. Before this measure, we threw away second-hand furniture on vacant land. It negatively influenced our social image and resulted in dirtiness. Since recycling of furniture was promoted, we have saved the time to deal with it and it is also convenient for customers.”*

Subject 5 mentioned the importance to construct brands, and suggested the following: *“In our industry, it is easy to change the prices of furniture and only the construction of brands can stabilize the fluctuation of prices.”*

Subject 3 mentioned the importance to construct brands and suggested the following: *“The young generation has different thoughts from us. They are creative and develop new products. The key is to have our own brand and we will not lose everything by being imitated by others.”*

Subject 4 suggested the importance to construct brands and indicated below: *“The fatal weakness was that we could not create brands for furniture and it was the cause of declination of traditional industry.”*

Quantitative research analysis

1. Factor analysis

Factor analysis is conducted on retrieved questionnaires to validate the relationships among variables. By KMO and Bartlett testing, the researcher attempts to determine if there is specific linear relations among original variables collected, and if it is proper to extract factors by factor analysis. Moreover, as KMO of variables in this study are higher than 0.7, factor analysis is appropriate. By number classification and according to results of factor analysis, there are four factors of the marketing

mix strategy, product strategy, price strategy, channel strategy, and promotion strategy. Accumulated explained variance of the marketing mix strategy, brand association, and purchase intention, are 54.411%, 53.329%, and 52.577%, respectively. The factors match the suggestion of Hair *et al.* (2006), that the accumulated explained variance is more than 50%.

2. Reliability analysis

Regarding reliability of scales, Cronbach's α of the marketing mix strategy, brand association, and purchase intention, are 0.755, 0.844, and 0.766, respectively, and they are all more than 0.7, which shows internal consistency among the items.

3. Basic descriptive statistics analysis

This study conducts questionnaire survey on consumers who have purchased furniture. Formal questionnaires are distributed to consumers who have purchased furniture by convenience sampling. Retrieved questionnaires represent the said consumers. Hence, it matches the research content required by this study. Among the subjects, there are 453 females (56.1%) and 354 males (43.9%); regarding age, 35.3% are more than 50 years old, 26% are less than (including) 29 years old, and 21.3% are 30-39 years old; regarding educational level, 35.3% are below senior high school and vocational school, 23.6% are graduated from university, and 18.6% are graduated from colleges; regarding residential areas, most live in southern Taiwan (7.4%) and central Taiwan (35.9%); most have personal average monthly incomes of less than NTD18,000 (35.3%); regarding occupation, most are housewives (17.7%) and students (15.3%).

4. Correlational

Result of correlation analysis first supports the hypotheses of this study (see Table 2). Hence, the following regression analysis can be conducted.

Table 2 Correlation analysis of research variables

Variables	Mean	Standard deviation	(A)	(B)	(C)	(D)	(E)	(F)	(G)
(A)Product strategy	4.030	.524	1						
(B)Channel strategy	3.605	.658	.205**	1					
(C)Promotion strategy	3.745	.606	.325**	.242**	1				
(D)Price strategy	3.208	.735	.217**	.295**	.283**	1			
(E)Brand association(product)	3.505	.647	.210**	.247**	.306**	.366**	1		
(F)Brand association(non-product)	3.311	.679	.157**	.215**	.235**	.355**	.527**	1	
(G)Purchase intention	3.748	.496	.308**	.434**	.362**	.180**	.361**	.316**	1

***denotes $P < 0.001$; **denotes $P < 0.01$

5. Regression analysis

According to Mode 1 and Mode 2 of Table 3, H1-1($\beta=0.287$, $p < 0.05$); H1-2($\beta=0.164$, $p < 0.05$); H2-1($\beta=0.386$, $p < 0.05$); H2-2($\beta=0.344$, $p < 0.05$); H2-3($\beta=0.338$, $p < 0.05$); H2-4($\beta=0.320$, $p < 0.05$). Thus, H1-1, 1-2, 1-3, 1-4, 2-1, and 2-2 are supported. It means that the marketing mix strategy and brand association influence consumers' purchase intention. Based on hierarchical regression analysis, the researcher attempts to determine how brand association influences retailers' marketing mix strategy and consumers' purchase intention. According to Table 3, in the relationship between promotion strategy and purchase intention of Mode 3, after product term of promotion strategy and brand association (product) is included, R^2 increases by 27.6%. It reaches significance level $P < 0.05$. β is 0.065; in addition, in the relationship between price strategy and purchase intention, after product term of price strategy and brand association (product) is included, R^2 increases by 21.4%. It reaches significance level $P < 0.05$ and β is 0.072. Hence, H3-3 and H3-4 are supported. In order to find the moderating effect between promotion

strategy and purchase intention, this study treats one standard deviation higher/lower than mean as the standard of group division, and draws the diagram of interaction. According to Figure 6, high brand association significantly enhances positive relations between the indicators of promotion strategy. Regarding the moderating effect between product strategy and purchase intention, this study treats the standard deviation higher/lower than the mean as the standard of group division, and draws a diagram of interaction of the two groups. According to Figure 7, high brand association significantly enhances the positive relationship between indicators of price strategy.

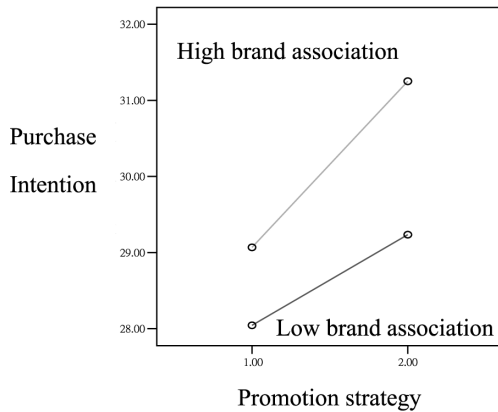


Figure 6: Moderating effect of brand association

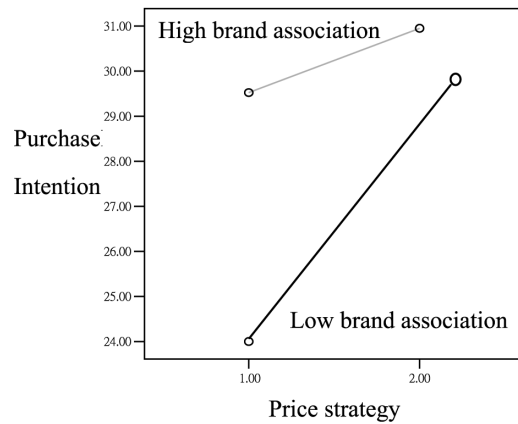


Figure 7: Moderating effect of brand association

Table 3: Regression analysis

Dependent variable	Control variables, independent variables and moderators	Mode 1	Mode 2	Mode 3
Purchase intention H3-1	Age	-.279*	-.277*	-.268*
	Personal average monthly income	.111*	.087*	.071*
	Product strategy	.287*		.226*
	Brand association (product)		.338*	.298*
	Product strategy *brand association(product)			-.034
	R ²	.183	.213	.264
	Adj R ²	.179	.209	.258
F value	49.444*	59.684*	47.359*	
Purchase intention H3-2	Age	-.221*	-.277*	-.222*
	Personal average monthly income	.105*	.087*	.071*
	Channel strategy	.386*		.325*
	Brand association (product)		.338*	.262*
	Channel strategy *brand association (product)			.018
	R ²	.245	.213	.308
	Adj R ²	.241	.209	.303
F value	71.520*	59.684*	58.838*	
Purchase intention H3-3	Age	-.272*	-.277*	-.269*
	Personal average monthly income	.128*	.087*	.090*
	Promotion strategy	.344*		.268*
	Brand association (product)		.338*	.254*
	promotion strategy *brand association(product)			.065*
	R ²	.220	.213	.282
	Adj R ²	.216	.209	.276
F value	62.191*	59.684*	51.812*	

Purchase intention H3-4	Age	-.286*	-.277*	-.274*
	Personal average monthly income	.127*	.087*	.082*
	Price strategy	.164*		.045
	Brand association(product)		.338*	.330
	Price strategy *brand association(product)			.072*
	R ²	.129	.213	.220
	Adj R ²	.125	.209	.214
	F value	32.565*	59.684*	37.283*
Purchase intention H3-5	Age	-.279*	-.307*	-.295*
	Personal average monthly income	.111*	.101*	.082*
	Product strategy	.287*		.242*
	Brand association (non-product)		.320*	.289*
	Product strategy *brand association (non-product)			-.040
	R ²	.183	.203	.262
	Adj R ²	.179	.199	.256
	F value	49.444*	56.085*	46.852*
Purchase intention H3-6	Age	-.221*	-.307*	-.246*
	Personal average monthly income	.105*	.101*	.081*
	Channel strategy	.386*		.326*
	Brand association (non-product)		.320*	.252*
	Channel strategy *brand association (non-product)			-.048
	R ²	.245	.203	.305
	Adj R ²	.241	.199	.299
	F value	71.520*	56.085*	57.839*
Purchase intention H3-7	Age	-.272*	-.307*	-.287*
	Personal average monthly income	.128v	.101*	.100*
	Promotion strategy	.344*		.286*
	Brand association(non-product)		.320*	.247*
	promotion strategy *brand association (non-product)			.042
	R ²	.220	.203	.281
	Adj R ²	.216	.199	.275
	F value	62.191*	56.085*	51.527*
Purchase intention H3-8	Age	-.286*	-.307*	-.302*
	Personal average monthly income	.127*	.101*	.096*
	Price strategy	.164*		.056
	Brand association(non-product)		.320*	.299*
	Price strategy *brand association(non-product)			.030
	R ²	.129	.203	.207
	Adj R ²	.125	.199	.201
	F value	32.565*	56.085*	34.377*

CONCLUSIONS AND SUGGESTIONS

Results

Table 4: Results of hypotheses

Research Hypotheses	Research Results
H1-1:Retailer' proposal of product strategy influences consumers' purchase intention	Supported
H1-2:Retailers' proposal of price strategy influences consumers' purchase intention	Supported
H1-3:Retailers' proposal of channel strategy influences consumers' purchase intention	Supported

H1-4:Retailers' proposal of promotion strategy influences consumers' purchase intention	Supported
H2-1:Product association of brand association influences consumers' purchase intention	Supported
H2-2:Non-product association of brand association influences consumers' purchase intention	Supported
H3-1:Product association of brand association influences product strategy of retailers' marketing strategy, and enhances positive correlation between product strategy and consumers' purchase intention.	Not supported
H3-2: Product association of brand association influences channel strategy of retailers' marketing strategy, and enhances positive correlation between channel strategy and consumers' purchase intention.	Not supported
H3-3:Product association of brand association influences promotion strategy of retailers' marketing strategy, and enhances positive correlation between promotion strategy and consumers' purchase intention.	Supported
H3-4:Product association of brand association influences price strategy of retailers' marketing strategy, and enhances positive correlation between price strategy and consumers' purchase intention.	Supported
H3-5:Non-product association of brand association influences retailers' product strategy of marketing strategy, and enhances positive correlation between product strategy and consumers' purchase intention.	Not supported
H3-6:Non-product association of brand association influences channel strategy of retailers' marketing strategy, and enhances positive correlation between channel strategy and consumers' purchase intention.	Not supported
H3-7:Non-product association of brand association influences promotion strategy of retailers' marketing strategy, and enhances positive correlation between promotion strategy and consumers' purchase intention.	Not supported
H3-8:Non-product association of brand association influences price strategy of retailers' marketing strategy, and enhances positive correlation between price strategy and consumers' purchase intention.	Not supported

CONCLUSIONS

Results and Discussion

This study conducted qualitative interview on the owners of retailers by items of BSM, and investigated consumers who have purchased furniture by quantitative questionnaire. Validation was based on factor analysis, correlation analysis, regression analysis, and moderating analysis. Based on the results of the qualitative interviews, the obstacles encountered by traditional industries were identified. Quantitative results revealed the effects of consumers' perceptions of the marketing mix strategy and brand association on purchase intention. Concerning the problems of traditional industry, this study proposed feasible suggestions. The empirical results (see Table 4) and discussion are shown as follows:

- (1) H1-1 is supported. Retailers' proposal of product strategy influences consumers' purchase intention. When selecting products, consumers' purchase intention is increased by product diversity, product functions, and promotion of retailers. However, according to qualitative interviews, owners in business circles pay attention to sales of products and lack marketing strategy. Therefore, quantitative result suggests that owners emphasize the implementation of product strategy.
- (2) H1-2 is supported. Retailers' proposal of channel strategy influences consumers' purchase intention. According to the results of interviews, the industry rarely provides multiple channels for consumers. In traditional channels, the stores deliver the goods to the clients' houses, which should rely on clients' time, as is inconvenient for both industry and customer channels. Hence, according to

the quantitative results, consumers value the convenience of channels (including convenience of purchase and convenience of post-sale service). It is suggested that the industry can cooperate with logistics firms, which not only lowers channel costs of the industry, but also increases channel convenience for customers.

- (3) H1-3 is supported. Retailers' proposal of promotion strategy influences consumers' purchase intention. When competition is severe, how do the enterprises maintain competitive advantages? Promotion strategy is the most effective measure. However, in the interviews, the enterprises rarely proposed the promotion strategy. According to the quantitative results, retailers' promotion influences consumers' purchase intention. It is suggested that the enterprises can enhance consumers' purchase intention by introducing different mixes of promotions.
- (4) H1-4 is supported. Retailers' proposal of price strategy influences consumers' purchase intention. Price strategy in a marketing strategy is the one with the lowest cost. Thus, enterprises can focus on price strategy to obtain immediate effectiveness. In the qualitative interviews, many enterprises suggested that furniture is easily bargained for by consumers. Hence, they raised the prices for consumers' bargaining, and they could not have fixed prices for each product. In the quantitative process, although retailers' price strategy influences consumers' intention, they should establish a price strategy to avoid the losses of changeable prices.
- (5) H2-1 is supported. Product association of brand association influences consumers' purchase intention. In quantitative research, consumers develop brand association for products and have purchase intention. However, in the traditional furniture industry, the retailers rarely promote or construct brands. In modern society, knowledge levels and brand consciousness increase. Many consumers select products according to brands. Hence, brand association of products is one of the purchase factors. It is suggested that retailers should actively establish brands.
- (6) H2-2 is supported. Non-product association of brand association influence consumers' purchase intention. Non-products (e.g., services, channels, and satisfaction) gradually influence consumers' purchase intention. According to the quantitative research, non-product brand association influences purchase intention. However, in the qualitative interview process, no retailers mentioned brands constructed for non-products. Hence, quantitative finding can be the suggestion for retailers' construction of non-product brands.
- (7) H3-1 is not supported. Product brand association does not moderate the relationship between retailers' product strategy and consumers' purchase intention. Although product strategy influences purchase intention, product brand association does not enhance consumers' purchase intention. Samples of this study are mostly female consumers aged more than 50 years old. When they purchase the goods, they focus on functions and practicability. Effectiveness of product brand association is insignificant. According to the qualitative interviews, construction of product brands is awareness. Retailers should continue establishing brands since it influences other groups.
- (8) H3-2 is not supported. Product brand association does not moderate the relationship between retailers' channel strategy and consumers' purchase intention. When channel strategy influences purchase intention, consumers do not have association with the convenience of transportation. Importance of product brand enhances their purchase intention.
- (9) H3-3 is supported. Product brand association moderates the relationship between retailers' promotion strategy and consumers' purchase intention. When implementing promotion strategy, product brand association is the key factor and it enhances consumers' purchase intention. According to the qualitative interviews, although it did not show that promotion strategy enhances purchase intention

by product brand association, quantitative results suggest that retailers enhance consumers' product brand association by including brands in a promotion and introducing product brands in a promotion.

- (10) H3-4 is supported. Product brand association moderates the relationship between retailers' price strategy and consumers' purchase intention. In implementation of price strategy, product brand association enhances consumers' purchase intention. According to the qualitative interviews, pricing in the price strategy is critical. The pricing strategy becomes one of the factors of consumers' purchase. Hence, in price strategy, brand can be included to inform the consumers that prices are higher because of brand.
- (11) H3-5, H3-6, H3-7, and H3-8 are not supported. Non-product brand association does not enhance the relationship among retailers' product strategy, channel strategy, promotion strategy, price strategy, and consumers' purchase intention. Non-product brand association means association with positive image of brands by satisfying psychological needs, or association with quality guarantee, service guarantee, upgrading of personal position, and positive feelings of use by brands. The above will not enhance the effect of retailers' marketing strategy on consumers purchase intention. The reason can be that most of the samples are housewives, and they do not pay attention to non-product brand association. However, according to the interviews, the retailers suggested that the younger generation values brands. The findings supplement the quantitative results, meaning that non-product brand association influences specific groups. When establishing non-product brands, retailers can design various kinds of brand association for different groups in order to increase the effect of the marketing mix strategy on consumers purchase intention.

Conclusions

By items of BSM, during the interviews, the managers suggested the main problems of modern traditional industries, such as the changeable prices of products. They mentioned the shortage of marketing implementation and positioning. Thus, we suggest that traditional industry can first clarify the characteristics and positions of products or non-products, and practice different marketing strategies in order to effectively enhance consumers' purchase intention in implementation of strategies. Regarding brand association, it is usually neglected by traditional industry. According to this study, when purchasing, consumers associate products with brands. Therefore, it is suggested that traditional industry should establish brands for sustainable development. In addition, based on the moderating effects of product brand association, in the purchase of goods, consumers' product brand association influences promotion strategy and price strategy. When industry implements promotion or price strategy, it can establish brand to enhance purchase intention. Finally, when retailers practice product strategy, channel strategy, product strategy, and channel strategy, although these strategies influence consumers' purchase intention, they do not enhance consumers' purchase intention by non-brand association. The reason can be that the effects on different consumers are different. Hence, according to the interviews of this study, breakthroughs in industry are limited. The limitations of capital, labor force, and techniques, are the obstacles encountered by modern traditional industry. Only the enhancement and assistance of policies can respond to environmental change. In this situation, it must clarify the obstacles encountered by the industry to propose effective strategies (marketing strategy or brand construction) to improve such problems for sustainable operation of traditional industry.

Research contributions

Traditional industry in Taiwan encounters enormous obstacles, which means they cannot maintain competitiveness or performance of positive growth, thus, it becomes an urgent issue to continuously develop or enhance the competitiveness of traditional industries to achieve sustainable operations. According to the literature review of this study, literature on traditional industry mostly focused on environmental issues, such as the impact and problems caused by changes of global economies. In addition, literature tended to solve the problems of environmental factors, and rarely studied the factors of marketing, brand, or other problems. According to interview results, the researcher probes into other issues encountered by traditional industry, such as implementation of national policies and rise of environmental consciousness. These factors are rarely explored or found in literature. Therefore, this study not only increases the academic factors of traditional industry, but also offers more specific and feasible plans for industries. The marketing mix strategy can be suggested for retailers and wholesalers. Brand construction can be suggested for manufacturers and industry. Hence, this study can contribute to the upstream, middle stream, and downstream of industries.

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