Full Length Research Paper

The impacts of brand equity, brand attachment, product involvement and repurchase intention on bicycle users

Yun-Tsan Lin[1]*, Shui-Chuan Chen[2] and Chuan-Sheng Hung[2]

[1]Department of Leisure Industry Management, National Chin-Yi University of Technology, 35, Lane 215, Section 1, Cung-Shan Road, Taiping City, Taichung County, 411 Taiwan.
[2]Department of Industrial Engineering and Management, National Chin-Yi University of Technology, 35, Lane 215, Section 1, Cung-Shan Road, Taiping City, Taichung County, 411 Taiwan.

The 15th Conference of the Parties (COP) under the United Nations Framework Convention on Climate Change (UNFCCC) in Copenhagen was over on 19 December 2009. Undoubtedly, people will pay more attention to global warming and green life in the future. Enhancing protection of ecology is a key point in future development of world bicycle industry. Bicycle industry in Taiwan has complete upper, middle and lower systems. As bicycle companies in Taiwan gradually focus on medium and high end bicycles and total export reached USD1.2 billion in 2009. This shows increasing added values. In such a competitive environment, bicycle brands must offer various product types to meet needs of different consumers. Brands are important intangible assets to a company and under great attention of major world players. Therefore and this study aims at impacts of brand equity, brand attachment, product involvement and repurchase intention on bicycle users when selecting bicycle brands and engaging in activities. Target included users in bicycle recreation on bicycle lanes in areas north of Taichung. A total of 400 questionnaires were issued in convenience sampling; 350 valid questionnaires were collected and verified with LISREL. The conditions were: brand equity has positive influence on brand attachment, repurchase intention and product involvement; product involvement has positive influence on brand attachment and repurchase intention and indirect influence on brand attachment through product involvement. Through product involvement and brand attachment, it has indirect influence on repurchase intention. Suggestions were proposed against the preceding conclusions as reference on marketing strategies and operation management in developing own brands by bicycle companies in Taiwan.

Key words: Bicycle, brand equity, brand involvement, brand attachment, repurchase intention, Structural Equation Modeling.

INTRODUCTION

People will pay more attention to global warming and green life in the future. Enhancing protection of ecology is a key point in future development of world bicycle Indus-try. Bicycle industry in Taiwan boasts complete upper, middle and lower stream systems. As proprietors involved themselves in medium/high end bicycles, our average

export unit price of bicycles started climbing from 2003. The average export unit price reached USD200 in 2005. According to Chinese National Export Enterprises Association (CNEEA), output in 2007 in Taiwan is 5.12 million bicycles at NTD3.9 billion. In addition to increased orders of full bicycle companies and the climate of energy saving and carbon reduction in environmentally friendly leisure overseas also boosted market growth. Total export amount reached USD1.2 billion in 2009, showing growing added values of bicycle industry in Taiwan.

Under such competitive industry environment, bicycle brands must offer a variety of product types to meet

---
*Corresponding author. E-mail: yuntsan@ncut.edu.tw, lovetsan@yahoo.com.tw. Tel: 886 4 23924505 ext: 8309, 886 937 769226. Fax: 886 4 23922003.

demands of different customers. Brands are a significant intangible asset to enterprises and valued by major world players. Aaker (1991) believes that future marketing war will be a war of brands. Unde (1994) holds that brand orientation is a key strategy for businesses to survive and grow, as differences among products will be increasingly smaller. Only with outstanding products does not guarantee victory in market. Businesses need brands with strong brand equity. Major businesses focus on establishment and management of brands, which are also considered one of the sources of competitive edges; brands will win identification and trust from customers while product differences are not significant or fail to sustain for a long time. Brands also serve as foundation of integrative marketing combination and marketing strategies in unstable environment (Laforet and Saunders, 1994), the primary goal of major businesses is to have products with high brand equity in tough competitions.

For Aaker (1991), brand equity covers five essential factors, or sources of value creation. They include: brand loyalty, brand awareness, perceived quality, brand association, and other exclusive brand assets such as patents, logos and channel relation. With higher consumers' ability to explain or handle information and trust in purchase policy, and satisfaction and the five factors enhance brand values to customers. Higher marketing efficiency and efficacy, brand loyalty, price and profits, brand extension, channel relation and competitive edges create company values; values to customers will bring more values to companies. To sum up, brand equity is based on behaviors of consumers and ideas of com-petitions to provide target consumers with various values to bring interests that help companies. Keller (1993) holds that brand equity is from marketing results of brands, subject to brand knowledge of consumers. Brand knowledge is core of brand equity. Brand knowledge is an associative network memory model made up of brand awareness and brand image.

One of the key issues in marketing science is to understand and predict consumers' response to brands. Park, Macinns and Prester (2006) believe that brand attachment is an idea based on relation process and a link to connect brands and self-recognition and emotions of consumers. It better explains specific consumer behaviors of higher levels. Strong brand attachment is the foundation of businesses' brand established top and brand asset formation. Relation between brand attachment levels and different behaviors will form a level. Idea of brand attachment is not old; it has won attention as new angle in brand emotion factor study in marketing. Bagozzi (2006) also holds that attachment is a significant issue full of hope and worth study.

Product involvement of consumers determines whether they accept product messages actively or passively, affecting level of collecting information and then process of purchase decisions (Zaichkowsky, 1994). Richins and Bloch (1986) point out that product involvement is the level that consumers link themselves with continuous or specific situation goals. In a broad sense, product involvement covers continuous involvement and situation involvement in nature. According to Huang and Lai (1990), different levels of product involvement results in different nature of consumers' decisions. Involvement level can be defined as relation with individuals; different consumers have different product involvement on the same products. Consumers, product types and situations affect consumers' products involvement (Bloch and Richins, 1983).

Enhancing consumers' purchase intention is the most important issue in any industry. Aaker (1973) believes that customers tend not to switch to other brands on products in high purchase frequency, as they are used to the brand. Zeithaml, Berry, and Parasuraman (1996) hold that, when customers no longer buy products or services of a company and the company will suffer from financial loss such as cost to win new customers. In mobile communication service industry, companies introduce promotional activities to entice customers with mobile phone numbers to be due to resume the contracts. Lee and Feick (2001) point out the seriousness of customer loss in mobile communication service market. Proprietors lose over 30% of customers each year. Winning new customers requires high cost. Purchase decision of consumers is a complicated cycle process. For consumers, feelings after purchase will be in feedback to collection of purchase experience and affect future repurchase intention.

Thus, brands are a very important asset to companies, who wish to enhance their brand equity. Brand attachment is a link connecting brand and consumers' self-recognition and emotions. It better explains specific consumer behaviors in higher levels. Level of consumers' product involvement affects awareness of risks to affect decisions of consumers. It is hoped to understand whether consumers intend to have repeated purchase of a certain brand to have repurchase intention. The findings, hopefully, will make sure of development of bicycle proprietors in own brands and bicycle proprietors will have better brand management to enhance their competitive edges in market.

METHODOLOGY

Based on study questions and purpose as well as literature review results and the study aims at relation between bicycle brands and consumers. The four major dimensions discussed are: brand equity, brand attachment, level of involvement and repurchase intention. The study structure and themes are given in Figure 1.

The study's hypotheses include:

H_1: for bicycle consumers, brand equity directly affects brand attachment and through product involvement, indirectly affects brand attachment. This hypothesis has three sub-hypothesis:
H_{1a}: for bicycle consumers, brand equity has positive influence on product involvement.
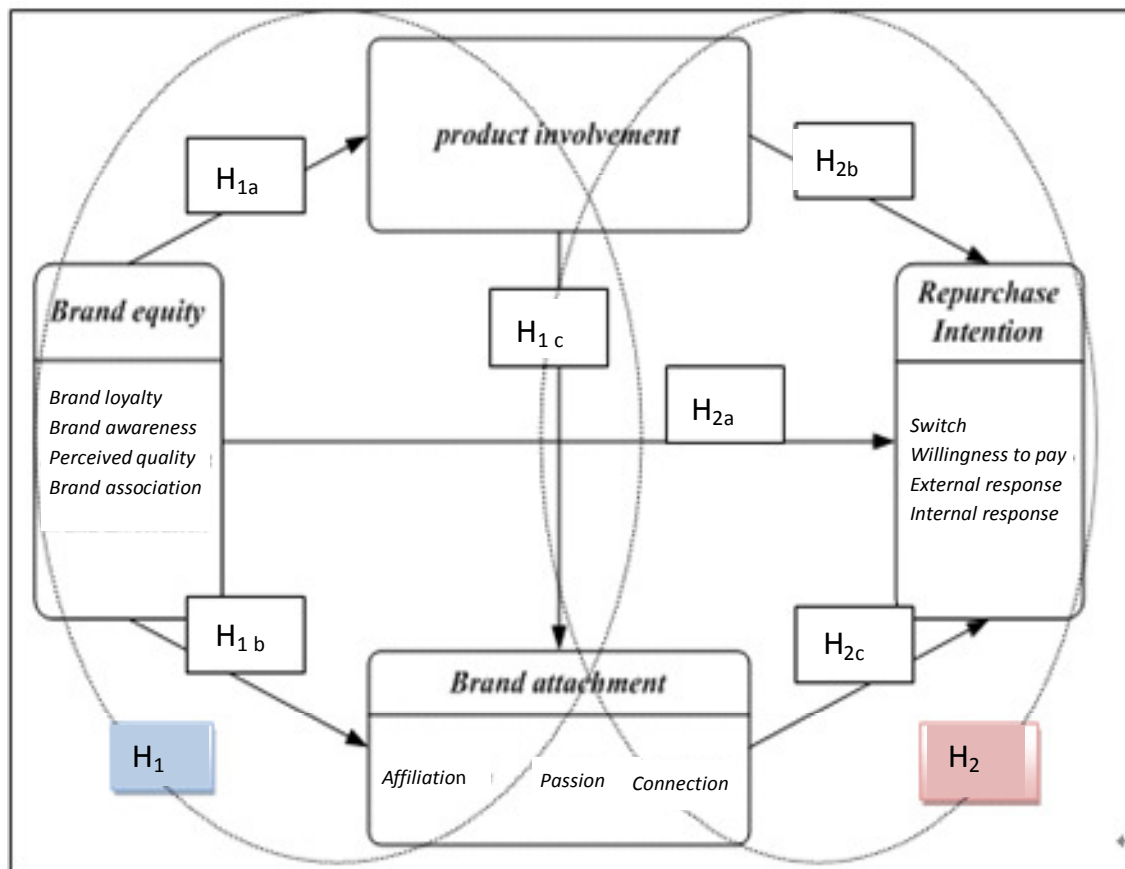H_{1b}: for bicycle consumers, brand equity has positive influence on

Figure 1. Study structure ideas.

brand attachment.

H_{1c}: for bicycle consumers, product involvement has positive influence on brand attachment.

H_2: for bicycle consumers, brand equity has direct influence on repurchase intention and through product involvement and brand attachment, indirect influence on repurchase intention. This hypothesis includes HA3 and following sub-hypothesis:

H_{2a}: for bicycle consumers, brand equity has direct influence on repurchase intention.

H_{2b}: for bicycle consumers, product involvement has positive influence on repurchase intention.

H_{2c}: for bicycle consumers, brand attachment has direct influence on repurchase intention.

Based on literature review and collected information in accordance with proceeding study structure and study hypothesis and the questionnaire has five parts. Part I: descriptive statistics and analysis of social background of bicycle brand consumers. Part II: in reference with scale by Aaker (1996) on measurement of brand equity and there are 14 questions in dimensions of brand loyalty, brand association, perceived quality, and brand awareness. Part III: with study by Thomosn, Maclnins and Park (2005), brand attach-ment is defined as a relation of emotions and unique links between consumers and brands. There are 10 questions in 3 dimensions of emotions, passion and association. Part IV: there are four questions in reference of study by Zaichkowsky (1994) on questions to measure product involvement levels. Part V: there are 11 questions

in four dimensions of transfer, payment intension, external reactions and internal reactions, in reference of repurchase intention scale by Parasuraman, Zeithamal and Berry (1996).

Population is consumers owing bicycle brands individually or with the family in Taiwan in February and March 2010; if they have more than 2 bicycles, answers shall be given based on the most frequently used bicycle brands; samples are taken in convenience sampling in non-ratio sampling. Relation among brand equity, brand attachment, involvement levels and repurchase intention is discussed with Structural Equation Modeling (SEM). A total of 400 questionnaires were issued; 377 were collected. There are 350 valid questionnaires at usability rate of 92.8% after deletion of questionnaires without complete answers.

RESULTS

A total of 400 questionnaires were issued in convenience sampling; 350 valid questionnaires were collected. Table 1 shows demographic profile of interviewees.

Before verification analysis, item analysis is made to understand feasibility and appropriateness of tests to enhance quality of test questions and have higher validity and reliability. Reliability of items is identified with corre-lation relevant analysis methods and internal consistency.

Table 1. Distribution of social demographic variables of interviewees.

Demographic statistics variable		Person times	Percent
Gender	Male	211	60
	Female	139	40
	Below 18	6	1.7
	18 to 25	90	26
	26 to 30	134	38
Age	31 to 40	80	23
	41 to 50	26	7
	Over 51	14	4
	Taipei City/County	125	35.7
	Taoyuan County	73	20.9
	Hsinchu City/County	69	19.7
Residence place	Taichung City/County	83	23.7
	Below junior high school	1	0.3
	Senior (vocational) high school	68	19.4
	Junior college	63	18
Education attainment	University	185	52.9
	Graduate school	33	9.4
Occupations	Military, personnel public servants and teachers	15	4.3
	Industry	36	10.3
	Commerce	53	15.1
	Medical care	10	2.9
Occupations	Information	63	18
	Service	118	33.7
	Manufacture	8	2.3
	Students	47	13.4
	<9999	46	13.1
Average personal monthly income	10000~19999	32	9.1
(NT)	20000~29999	116	33.1
	30000~39999	94	26.9
	>40000	62	17.7
	Giant	174	49.7
	Merida	47	13.4
	KHS	44	12.6
	DAHON	23	6.6
bicycle brands	FUJI	16	4.6
	Doppelganger	13	3.7
	Flamingo	2	0.6
	Other brands	31	9

Correlation analysis involves product-moment correlation of scores and total scores of each item. If the relation is significant ($p<0.05$) and product-moment correlation exceeds 0.3 and the items has sound identification (Hair, Anderson, Tatham and Black, (1998). Internal consistency analysis ranks scores of each interviewee; those

Table 2. Item analysis of each dimension.

Variable	Brand equity	Brand attachment	Product involvement	Repurchase intention
Correlation coefficient *r*	0.32 - 0.75	0.30 - 0.77	0.4 - 0.67	0.31 - 0.56
independent samples *t-test*	6.49 - 25.72	10.03 - 21.78	14.28 - 20.95	7.64 - 14.42

Table 3. Skewness and kurtosis of observed variables.

Variable	Average	Standard deviation	Kurtosis	Skewness
Brand equity	2.59 - 4	0.579 - 1.04	-0.99 - 1.23	-0.98 - 0.38
Brand attachment	3.13 - 3.79	0.68 - 0.95	-0.64 - 0.76	-0.90- -0.22
Product involvement	3.15 - 3.87	0.65 - 0.90	-0.39 - 0.28	-0.80 - 0.01
Repurchase intention	3.15 - 3.77	0.53 - 0.91	-0.44 - 0.50	-1.18- -0.10

with to 25% scores are in high score group; those with bottom 25% scores are low score group. Average of each item in high and low score groups are calculated to check if each question is distinctive in high and low score groups. Tests are then made with independent samples *t*-Test. If the question is distinctive ($p<0.05$) and *t* exceeds 3, it has identification and has to be kept or deleted if vice versa (Hair et al., 1998). In Table 2, all items are distinctive and questions have sound identification.

Causal relation among variables in model idea is discussed with SEM. Before LISREL analysis, we shall first confirm if samples meet basic presumption of SEM— whether data are in normal distribution to avoid affecting model estimation and test results. To confirm if samples are in normal distribution, one shall first check sample kurtosis and skewness. If kurtosis absolute value exceeds 10 and there are problems with the samples; if skewness absolute value is over 3, it is deemed extreme value. The two are in violation of basic presumption of SEM (Kline, 1998). In Table 3, study results show all observed variables' skewness and kurtosis do not greatly affect estimation with normal distribution. Maximum Likelihood (ML) is used in estimation model in the study.

Confirmatory factor analysis

Key variables in this study include brand equity, brand attachment, involvement levels and repurchase intention. Confirmatory Factor Analysis (CFA) is made on the measurement models of the four variables.

LISERL program offers a number of fit test measures to test internal fit of presumed models with test values of measures. With suggestions of Huang (2007), Wu (2007), Hu and Bentler (1999), Hair et al. (1998), Bentler and Bonett (1980), Absolute Fit Measures, Incremental Fit Measures and Parsimonious Fit Measures are adopted check internal fit of items with CFA on brand equity, brand attachment, product involvement and repurchase

intention. In absolute fit measures, GFI (goodness of fit index) standard value shall exceed 0.9; standardized root mean square residual (SRMR) shall be below 1; root mean square error of approximation (RMSEA) shall be less than 0.05. This means theory model is acceptable. This standard is good fit; if RMSEA is between 0.05 and 0.08, it is fair fit. In general, less than 0.08 is acceptable fit; adjusted goodness of fit index (AGFI) shall exceed 0.9. In Incremental Fit Measures, non-normed fit index (NNFI) shall be between 0 and 1. If structural equation is fit and the value will be close to 1. Value over 0.9 is recommended; Comparative fit index (CFI) is between 0 and 1. Larger value means better fit. Value over 0.9 is recommended; in parsimonious fit measures, parsimonious normed fit index (PNFI) shall have high values. In general, PNFI over 0.5 is standard; Parsimonious Goodness of Fit (PGFI) is between 0 and 1. Value closer to 1 means the model is more parsimonious. PGFI over 0.5 is acceptable standard; In Chi-square freedom index (χ^2/df) and the value shall be as small as possible and less than 3 is standard. Factor load of item (observed variables) by Jöreskog and Sörbom (1989) shall be distinctive and standard coefficient shall be no less than 0.45.

In measurement model of brand equity, brand attachment, product involvement and repurchase intention, some measure fail to pass threshold. With Modification Index (MI), it is found some questions have high mutual relation.

If observed item MI is over 3.84, modification is deemed possible. Only one parameter is released each time in principle. Try to start from observed items with maximum MI (Huang, 2007). Questions are deleted, including Q13 and Q16 in brand equity, Q24, Q25 and Q28 in brand attachment and Q35 in repurchase intention.

After model MI and test models of brand equity, brand attachment, product involvement and repurchase intention pass overall model fit test and factor load test as

Table 4. Internal fit test results after modified brand equity, brand attachment, product involvement and repurchase intention.

Fit index	Standard value	Brand equity	Brand attachment	Product involvement	Repurchase intention
GFI	>0.90	0.93	0.99	0.99	0.96
SRMR	>0.10	0.04	0.02	0.02	0.05
RMSEA	≤0.08	0.07	0.06	0.05	0.06
AGFI	>0.90	0.90	0.95	0.97	0.93
NNFI	>0.90	0.96	0.98	0.98	0.96
CFI	>0.90	0.97	0.99	0.99	0.97
PNFI	>0.50	0.72	0.50	0.63	0.66
PGFI	>0.50	0.60	0.58	0.50	0.54
χ^2/df	$\chi^2/df < 3$	2.98	2.63	1.94	2.41

Table 5. Scale reliability and validity.

Potential variable	Individual reliability (R^2)	CR	AVE
		0.85	0.54
Brand equity	0.30 - 0.76	0.62	0.45
		0.63	0.46
		0.74	0.50
		0.62	0.45
Brand attachment	0.42 - 0.74	0.79	0.65
		0.76	0.62
Product involvement	0.35 - 0.77	0.76	0.45
		0.64	0.49
Repurchase intention	0.27 - 0.90	0.81	0.59
		0.76	0.76
		0.68	0.68

in Table 4.

Scale reliability and validity

After the model is checked with offending estimate, assessment of internal fit measure and factor load, assessment is made on scale reliability and validity.

The main purpose is to test single observed item reliability and potential variable reliability. Huang (2007) points out 0.20 can be low standard for single variable reliability. SEM also has reliability measures to test potential variables, called Composite reliability (CR). Hari et al.

(1998) believe that CR is to calculate standard load of individual variables through CFA to have factor reliability and potential variables' CR.

Bagozzi and Yi (1988) suggest CR exceed 0.60; Raines-Eudy recommends CR over 0.50. In validity, index variable variance can be explained with Average Variance Extracted (AVE).

Higher extraction of average variance means the idea has higher convergent validity. Bagozze and Yi (1988) suggest over 0.5 as standard value; Gomez, Arranz and Cillan (2006) believe it shall exceed 0.45 to meet standard. The formula is as follows:

$$\text{Composite reliability (CR)} = \frac{\left(\Sigma\, s\tan dardized\_loading\right)^2}{\left[\left(\Sigma\, s\tan dardized\_loading\right)^2 + \Sigma indicatar\_measurement\_error\right]}$$

Table 6. Internal model fit test of the study.

Fit measure	Test	Standard	Result
GFI	0.95	>0.9	O.K.
SRMR	0.03	<0.1	O.K.
RMSEA	0.04	≤0.08	Good fit
AGFI	0.93	>0.9	Close
NNFI	0.99	>0.9	O.K.
CFI	0.99	>0.9	O.K.
PNFI	0.79	>0.5	O.K.
PGFI	0.67	>0.5	O.K.
χ^2/df	1.58	$\chi^2/df > 3$	O.K.

$$\text{Average variance extracted (AVE)} = \frac{\left(\Sigma\, s\tan dardized\_loading^2 \right)}{\left[\Sigma\, s\tan dardized\_loading^2 + \Sigma indicatar\_measurement\_error \right]}$$

In which, standardized loading = observed items' standardization parameters in potential variables; Indicator measurement error = observed item measurement error.

Brand equity CFA model scale reliability and validity is in Table 5. Individual reliability and CR meet threshold by earlier scholars. Convergent validity exceeds 0.45. Thus and the study has sound CR and convergent validity.

Path analysis

Before study hypothesis test, observed item fit in the model is understood with path analysis; the path analysis includes offending estimate and internal model fittest. From offending estimate check by earlier scholars, it is found measurement error parameters of δ_1 to δ_4 and ε_1 to ε_{11} is 0.11 to 0.68.

There is no minus value; standardization coefficients of observed items λ_{a1} to λ_{d4} are 0.57 to 0.94. None exceeds or is too close to 1; standard error λ_{a1} to λ_{d4} of observed items is between 0.03 and 0.05 without great standard errors.

Path analysis in this study passes check of offending estimate to reach suggested standard of earlier scholars, showing that brand equity, brand attachment, product involvement and repurchase intention have sound overall fit as in Table 6.

In the study, γ and β represent each hypothesis path in the hypothesis structure model. Parameters of γ and β may confirm whether hypothesis path in hypothesis model in the study is established.

H_{1a}: The findings show, for bicycle consumers, product involvement is affected by brand equity. Standardization coefficient (γ1) is 0.48 and t is 8.34. Both are statistically distinctive (p<0.05) and have positive influence. Explanation of brand equity on product involvement is 23%

(0.48 × 0.48 = 0.23) for bicycle consumers, brand equity does have positive influence on product involvement. Hypothesis is established.

H_{1b}: the findings show, for bicycle consumers, brand attachment is affected by brand equity. Standardization coefficient (γ2) is 0.33 and t is 5.43. Both are statistically distinctive (p<0.05), explanation of brand equity on brand attachment is 11% (0.33 × 0.33 = 0.00) in positive influence. For bicycle consumers, brand equity does have positive influence on brand attachment. Hypothesis is established.

H_{1c}: the findings show, for bicycle consumers, brand attachment is affected by product involvement. Standardization coefficient (β1) is 0.29 and t is 4.79, statistically distinctive (p<0.05) and have positive influence. Product involvement explanation on brand attachment is 8% (0.29 × 0.29 = 0.08). For bicycle consumers, product involvement has positive influence brand attachment. Hypothesis is established.

H_1: From H_{1a}, H_{1b} and H_{1c}, for bicycle consumers, brand equity has direct influence on brand attachment and indirect influence on brand attachment through product involvement. H_1 hypothesis is established. From residual and total direct and indirect explanation of brand attachment by brand equity and product involvement is 28% (R^2 = 1-0.72 = 0.28).

H_{2a}: The findings show, for bicycle consumers, repurchase intention is affected by brand equity. Standardization coefficient (γ3) is 0.22 and t is 3.88, statistically distinctive (p<0.05) and having positive influence. Brand equity explanation on repurchase intention is 5% (0.22 × 0.22 =0.05). For bicycle consumers, brand equity has positive influence on influence on repurchase intention.
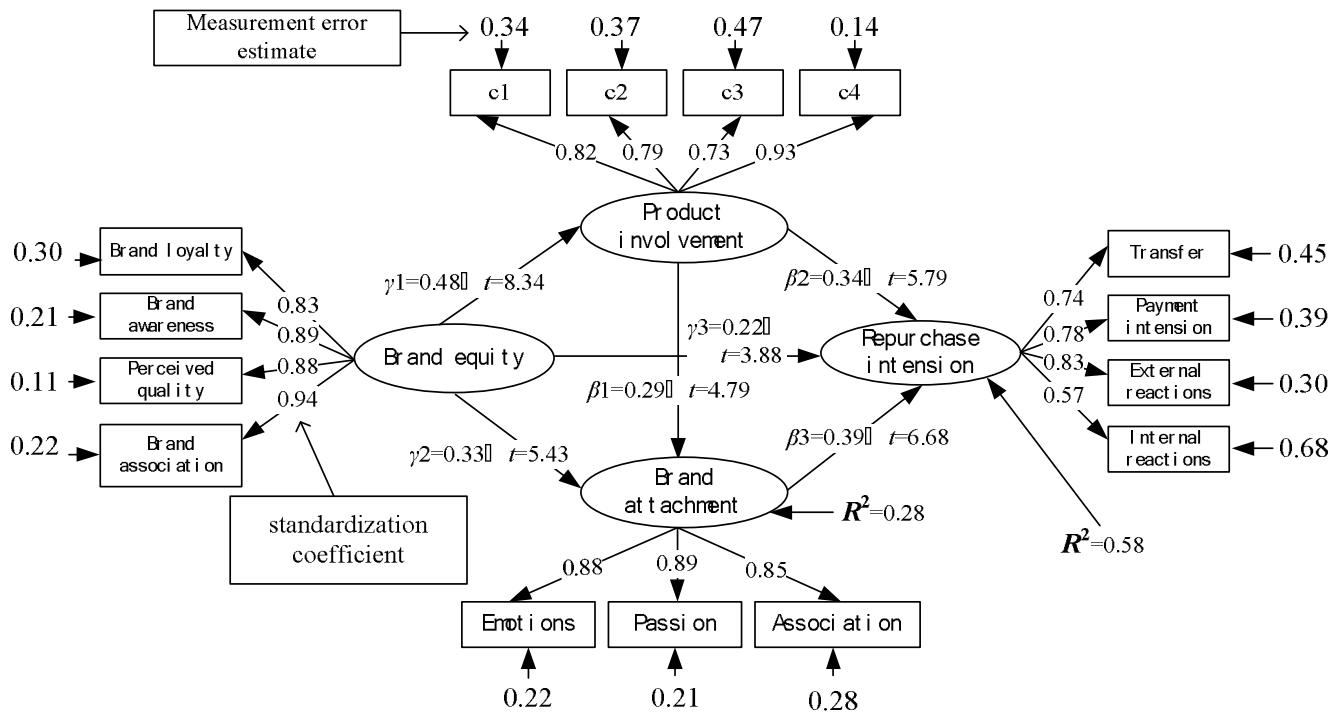
Figure 2. Path analysis standardization estimation of brand equity, brand attachment, product involvement and repurchase intention.

Hypotheses are thus established.

H_{2b}: the findings show, for bicycle consumers, repurchase intention is affected by product involvement. Standardization coefficient ($\beta2$) is 0.34 and t is 5.79, statistically distinctive (p<0.05) and having positive influence. Product involvement explanation on repurchase intention is 12% (0.34 × 0.34 = 0.12). For bicycle consumers, product involvement has positive influence on repurchase intention. Hypothesis is established.

H_{2c}: the findings show, for bicycle consumers, repurchase intention is affected by brand attachment. Standardization coefficient ($\beta3$) is 0.39 and t is 6.68, statistically distinctive (p <0.05) and having positive influence. Brand attachment explanation on repurchase intention is 15% (0.39 × 0.39 = 0.15). For bicycle consumers, brand attachment has positive influence on repurchase intention. Hypothesis is established.

H_2: from H_{2a}, H_{2b}, H_{1c} and H_{2c}, for bicycle consumers, brand equity, through brand attachment and product involvement, has indirect influence on repurchase intention. From residual, total direct and indirect explanation of repurchase intention by brand equity, brand attachment and product involvement is 58% (R^2 = 1-0.42 = 0.58). H_2 is established. From activity relation chart, H_{1a} (0.48) and H_{2c} (0.39) have great direct influence effects as in Figure 2.

Conclusions

1. For bicycle consumers, brand equity has positive influence on product involvement. The findings show, for bicycle consumers, product involvement is affected by brand equity. Standardization coefficient is 0.48 and t is 8.34, statistically distinctive (*p*<0.05). For bicycle consumers, brand equity has positive influence on product involvement. Brand equity affects consumers' product involvement. Brand equity makes consumers pay more attention to products so they look for messages on products actively. High and low involvement levels and relation with brand equity are established; brand value is enhanced.

2. For bicycle consumers, brand equity has positive influence on brand attachment. The empirical findings show, for bicycle consumers, brand attachment is affected by brand equity. Standardization coefficient 0.33 *and t* is 5.43; both are statistically distinctive (*p*<0.05) and have positive influence. Brand equity has positive influence on brand attachment. Higher brand equity will lead to higher attachment of consumers, who are willing to buy, invest in brands and maintain their relation with brands.

3. For bicycle consumers, product involvement has positive influence on brand attachment. The findings show, for bicycle consumers, brand attachment is positively affected by product involvement. Standardization coefficient is 0.29 and t is 4.79, statistically distinctive (*p*<0.05). When consumers have different involvement, they indirectly have brand attachment and consequence results. If

brand and consumers have distinctive association, attachment leads to different strong behaviors and extend to businesses through products and brands. Businesses will enjoy growing revenues and enhance brand asset to have competitive edges.

4. For bicycle consumers, brand equity has direct and positive influence on repurchase intention. The findings show, for bicycle consumers, brand equity has direct and positive influence on repurchase intention. Standardization coefficient is 0.22 and t is 3.88, statistically distinctive ($p<0.05$). Brand equity of consumer has direct association with purchase intention. Higher brand equity may lead to higher purchase intention.

5. For bicycle consumers, product involvement has positive influence on repurchase intention. Consumers are involved in products when evaluating product property. Once products are important to consumers, consumers have higher involvement. The findings show, for bicycle consumers, product involvement has positive influence on repurchase intention. Standardization coefficient is 0.34 and t is 5.79, statistically distinctive ($p<0.05$). If consumers have higher interaction with products, they have higher overall evaluation and higher repurchase intention. Thus, higher consumer product involvement leads to higher relation between consumers and repurchase intention. That is, repurchase intention influence will be more distinctive.

6. For bicycle consumers, brand attachment has positive influence on repurchase intention. The empirical findings show, for bicycle consumers, brand attachment has positive influence on repurchase intention. Standardization coefficient is 0.39 and t is 6.68, statistically distinctive ($p<0.05$). Once brands provide consumers with required resources, consumers believe the brands have personalized meaning and are related to them. The brands offer sensory organ pleasures, enjoyment or beauty to meet consumer egos and transform to repurchase intention.

7. For bicycle consumers, brand equity has direct influence on brand attachment and, through product involvement, indirect influence on brand attachment. Total direct and indirect residual brand attachment explanation by brand equity and product involvement is 28% (R^2 = 1-

0.72 = 0.28). To enhance consumer attachment on brands, businesses have to strengthen brand equity and product involvement so that consumer will have emotions, relation and commitment of person to person on the brands. Brand attachment will precisely predict consumer loyalty on brands, show nature of interaction between consumers and brands and precisely predict consumers' commitment and specific purchases. Consumers will pay high price to be attached to brands and businesses will reach the goal of brand attachment.

8. For bicycle consumers, brand equity has direct influence on repurchase intention and, through product involvement and brand attachment, indirect influence on repurchase intention. Total direct and indirect residual repurchase intention explanation by brand equity, brand attachment and product involvement is 58% (R^2 = 1-0.42 = 0.58). To enhance market productivity and increase consumer repurchase intention, businesses must enhance brand equity, product involvement and brand attachment to have higher consumer repurchase intention.

IMPLICATIONS

1. Building brand equity, brand attachment, and product involvement, taking actions in consideration of company interests based on customers' experience and understanding of brands in order to provide target consumers with values and then bring interests to companies.

2. Businesses shall have comprehensive brand management system in integration, including brand images, post-sale service, product design, and contact between business brands and consumers, which will meet brand values and present brand intention. Other than external communication, brand managers will help internal communication to convey business brand culture and have internal and external integration to enhance brand levels and ensure brand consistency.

REFERENCES

Aaker DA (1973). Toward a normative model of promotional decision making. Manage. Sci., 19(6): 593-603.

Aaker DA (1991). Managing Brand Equity. New York: The Free Press.

Aaker DA (1996). Measuring brand equity across products and markets. Calif. Manage. Rev., 38(3): 102-120.

Bagozzi RP (2006). The role of social and self-conscious emotions in the regulation of business-to-business relationships in salesperson-customer interactions. J. Bus. Ind. Mark., 21(7): 453-457.

Bagozzi RP, Yi Y (1988). On the evaluation of structural equation models. Acad. Mark. Sci., 16: 76-94.

Bentler PM, Bonett DG (1980). Significant tests and goodness of fit in the analysis of covariance structures. Psych. Bull., 88: 588-606.

Bloch PH, Richins ML (1983) . A theoretical model for the study of product importance perceptions. J. Mark., 47: 3-11.

Hair TD, Anderson RE, Tatham RL, Black WC (1998). Multivariate Data Analysis. Upper Saddle River, NJ: Prentice Hall.

Hu L, Bentler PM (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Struct. Equ. Modeling, 6(1): 1-55.

Huang CY, Lai WP (1990). Involvement theory: Development and application. J. Manage. Sci., 7(1): 15-29.

Huang FM (2007). Structural Equity Modeling: Theory and Application. Taipei: Wu-Nan Press Co.

Jöreskog KG, Sörbom D (1989). LISREL 7: A guide to the program and applications. Chicago: SPSS Inc.

Keller KL (1993). Conceptualizing, measuring, and managing customer-based brand equity. J. Mark., 57 (1): 1-22.

Kline RB (1998). Principles and practice of structural equation modeling. New York: The Guilford Press.

Laforet S, Saunders J (1994). Managing brand portfolios: How the leaders do it. J. Adv. Res., 18(3): 64-76.

Lee J, Lee J, Feick L (2001). The impact of switching costs on the customer-loyalty link: Mobile phone service in France. J. Serv. Mark., 15: 35-48.

Park CW, Macinns DJ, Prester J (2006). Beyond attitudes: Attachment and consumer behavior. Seoul J. Bus., 12(2): 3-35.

Raine-Eudy R. (2000). Using structural equation modeling to test for different reliability and validity: An empirical demonstration. Struct. Equ. Modeling, 7(1): 124-141.

Richins ML, Bloch PH (1986). Research in brief after the new wears off: The temporal context of product involvement. J. Consum. Res., 13(1): 280-285.

Thomson M, Macinnis DJ, Park CW (2005). The ties that bind: The strength of consumers' emotional attachments to brands. J. Consum. Psychol., 15(1): 77-91.

Unde M (1994). Brand orientation: A strategy for survival. J. Consum. Mark., 11(3): 18-32.

Wu ML (2007). Structural Equation Modeling: Operation and Application Using SPSS AMOS. Taipei: Wu-Nan Press Co.

Zaichkowsky JL (1994). The Personal involvement theory: Reduction, revision, and application to advertising. J. Adv., 23(4): 59-70.

Zeithaml VA, Berry L, Parasuraman A (1996). The behavioral consequences of service quality. J. Mark., 60(2): 31-46.