Consumer Innovativeness and Chinese's Really New Product Adoption Behaviour

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Abstract

This research draws on the call by Im, Mason and Houston (2007) and Hauser, Tellis and Griffin (2005) for further investigation on consumer innovativeness, its measurement, and its link to really new product adoption. Most studies of consumer innovativeness have been done in the U.S. and Europe. The Asia – Pacific regions has not attracted much attention. Specifically, this research examines the relationship between consumer innate innovativeness, domain specific innovativeness, vicarious innovativeness, and the adoption of "really new" consumer electronic products in China and Taiwan. The result finds that the adoption of such products is primarily influenced by Domain Specific Innovativeness rather than Consumer Innate Innovativeness. In terms of Vicarious Innovativeness, Advertising is found to be the most important predictor of really new product adoption in both China and Taiwan.

Keywords: Consumer innovativeness, Really new product adoption

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Introduction

Empirical studies have proposed various forms of consumer innovativeness such as consumer innate innovativeness (CII) (Midgley and Dowling, 1978), domain specific innovativeness (DSI) (Goldsmith and Hofacker, 1991) and vicarious innovativeness (VI) (Hirschman,1980). Prior research suggests that the relationship between consumer innate innovativeness and adoption of product innovations is positive but weak (Goldsmith, Freiden, and Eastman, 1995; Im, Bayus, and Mason, 2003; Im, Mason and Houston, 2007). DSI and VI are suggested to play an effective mediating role between CII and the adoption of really new products (Im, Mason, and Houston, 2007)**.** The foundation of this research is drawn from Hauser, Tellis, and Griffin (2005) who suggest that further research needs to be done to clarify the role of consumer innovativeness across countries. As a consequence, there is a need to better understand the relationship between CII, DSI, VI, and really new product adoption (Im, Mason, and Houston, 2007).

Consumer innate innovativeness (CII)

Prior studies consider consumer innovativeness as a generalized personality trait which is named as consumer innate innovativeness (Clark and Goldsmith, 2006; Hurt, Joseph, and Cook, 1977). This study defines CII as an innovative predisposition which is the degree to which the individual is willing to adoption innovations such as goods and services or new ideas without communicating with others' previous purchasing experience (Midgley and Dowling, 1978). Empirical research has suggested that consumer innate innovativeness, which can help identify innovators, has a significant impact on the adoption of a product innovation (Citrin, Sprott, Silverman, and Stem, 2000; Im, Bayus, and Mason, 2003; Lassar, Manolis, and Lassar, 2005; and Rogers, 2003). However, the relationship between consumer innate innovativeness and adoption of product innovations provided by empirical studies is inconsistent (Im, Mason, and Houston, 2007) and lacks of consensus (Roehrich, 2004). Hauser, Tellis, and Griffin (2005) suggest that a consensus of measurement and scales on consumer innovativeness is one key challenge of new product adoption research.

Domain specific innovativeness (DSI)

Domain specific innovativeness which is another measurement scale of consumer innovativeness developed by Goldsmith and Hofacker (1991) is defined as "the tendency to learn about and adopt product innovations (new products) within a specific domain of interest" (p.210). Im, Bayus, and Mason (2003) suggest that consumer innovativeness and the adoption of new products should be considered as inconsistent across domains. DSI is found to be the most useful scale to measure consumer innovativeness in a specific product category (Citrin, Sprott, Silverman, and Stem,2000 and Hynes and Lo, 2006). However, DSI has rarely been utilized to measure consumer innovativeness in Asia. The current study extends DSI to an international context including China and Taiwan. In addition, Goldsmith, Freiden, and Eastman (1995) believe that the relationship between CII and new product purchase is mediated by DSI. Further, Roehrich (2004) considers DSI as "intermediary" between innate innovativeness and the adoption of new products; although this has yet to be tested. Goldsmith, Hauterville, and Flynn (1997) note that the DSI scale is appropriate to measure the relationship between consumer innovativeness and new product adoption.

Vicarious innovativeness (VI)

Hirschman (1980) defines vicarious innovativeness as "the acquisition of information regarding a new product. Through vicarious innovativeness the individual can, in essence, adopt the product concept without adopting the product itself" (p.285). Even though not

many researchers use vicarious innovativeness specifically, research does exist showing that "**Word of Mouth"** (Mahajan, Muller and Kerin, 1984; Verleye and Marez, 2005) and **"Advertising"** (Lee, Lee and Schumann, 2002; Prins and Verhoef, 2007) do play an important role on new product adoption. Further, Im, Mason, and Houston (2007) consider **"Modeling"** as the third component in vicarious innovativeness. They suggest that vicarious innovativeness has a certain degree of impact on new product adoption and further identify the mediating role of vicarious innovativeness between CII and new product adoption.

Really new product adoption

This study defines "really new products" as a market discontinuity or a technological discontinuity but will not incorporate both" (Garcia and Calantone, 2002). The adoption of really new products was measured by firstly, cross-section method which considers the numbers of really new electronic products owned/adopted at the time of the survey, and secondly, relative time of adoption which considers the numbers of years or months since the adoption. Both methods are to be appropriate measuring methods by prior research (Im, Mason, and Houston, 2007; Tellis, Yin, and Bell, 2005).

Research Question and Hypothesis

As a result of the literature review, consumer innovativeness, which has various forms, is the central focus of this study. Because of market globalization and competition, national differences may also play an important role in affecting the nature of consumers' buying behaviour. Most studies of new product diffusion have been done in the U.S. and Europe. The Asia – Pacific regions has attracted little attention. Empirical consumer innovativeness scales used in the U.S. and Europe have not yet been widely tested for their validity and usefulness cross-culturally, especially in relation to non-English speaking countries. This research investigates the role of consumer innate innovativeness, domain specific innovativeness, and vicarious innovativeness in influencing the adoption of really new products in China and Taiwan. The main research question this study seeks to answer is: ***What is the relationship between consumer innate innovativeness, domain specific innovativeness, vicarious innovativeness, and the adoption of really new products?***

Consumer innate innovativeness is suggested by numerous empirical researchers to have a positive relationship on the adoption of product innovations (Citrin, Sprott, Silverman, and Stem, 2000; Im, Bayus, and Mason, 2003; Lassar, Manolis, and Lassar, 2005; Midgley and Dowling, 1993; and Rogers, 2003). CII was measured in this study using the Hurt-Joseph-Cook's (1997) 11-item scale.

H1: Consumer Innate Innovativeness is positively associated with a) ownership of really new products, and b) relative time of really new product adoption.

Domain specific innovativeness is another measurement scale of consumer innovativeness developed by Goldsmith and Hofacker (1991). Prior studies have found that DSI is a better measurement to capture innovators and early adopters who have a higher tendency for new product adoption (Handa and Gupta, 2009; Klink and Athaide, 2010; Xie, 2008). Further, DSI is suggested to play an important role between the relationship of CII and new product adoption (Roehrich, 2004). DSI was measured in the study using the 6-item scale developed by Goldsmith and Hofacker (1991).

H2: Domain Specific Innovativeness is positively associated with a) ownership of really new products, and b) relative time of really new product adoption.

H3: Domain Specific Innovativeness mediates the relationship between Consumer Innate Innovativeness and a) ownership of really new products and b) relative time of really new product adoption.

Vicarious innovativeness which includes Advertising, Modeling, and Word of Mouth is suggested to have a significant relationship with new product adoption and to play a mediating role between CII and new product adoption (Im, Mason, Houston, 2007). VI was measured in the study using the same approach employed by Im, Mason, and Houston (2007).

H4: Vicarious Innovativeness is positively associated with a) ownership of really new products, and b) relative time of really new product adoption.

H5: Vicarious innovativeness mediates the relationship between consumer innate innovativeness, domain specific innovativeness and a) really new product adoption, and b) relative time of really new product adoption.

Methodology

Consumer electronic products are suggested to have more really new products introduced each year was chosen for the study. A questionnaire, which is comprised of existing and modified measurement items, was the primary research instrument in the study. The questionnaire was translated into Chinese by the researcher and reviewed by a qualified bilingual translator, and then translated back into English by two qualified bilingual translators. The data were collected in early 2009 and participants were randomly selected from individuals in front of shopping centers in two major cities of Taipei, Taiwan and Shanghai, China. The only limitation of participants was that they need to be over 18 years old. Prior to general administration of the survey, a pilot study was done on a convenience sample of university students in Taiwan. As a result, minor modifications were made to final questionnaire.

The demographics for the current study reveal that gender is distributed equally for China and Taiwan (Male: n = 106, 48.8% China; n = 109, 47.8% Taiwan). Half of the respondents are between 26-35 years old in China (n = 104, 50.2%) and Taiwan (n = 104, 49.8%). More than half of respondents have undergraduate degree in China (n = 116, 56%) and Taiwan (n = 161, 77%). The average household income in Chinese samples is in the range of less than $1,000 CN dollars per month (n = 74, 37.4%), and the average household income in Taiwanese samples is in the range of $30,000 to $80,000 TW dollars per month (n = 104, 49.8%).

Analysis and Results

Reliability and Validity

All scales were subject to exploratory and confirmatory factor analysis. EFA suggested that CII, VI, and DSI did not have a unidimensional structure, thus, new factors were created and subjected to confirmatory factor analysis. The final measurement model was evaluated using AMOSv16. Reliability of constructs and factors ranged from 0.69 to 0.88, indicating most factors had good internal consistency, except DSI scale. The Cronbach's alpha scores of the factor with positive items of DSI scale were at an unacceptable level. As a result, it was removed from the subsequent analysis. Convergent validity was assessed by computing

average variance extracted (AVE) score, and the results showed that the AVE were all greater than the .50, which indicated good convergent validity. Discriminant validity was assessed by comparing the minimum variance extracted for each pair of constructs with the square of the correlation between them. The square of the correlations were all less than the AVE score.

Integrated Model

The hypothesized relationships were estimated using path modeling procedures. Overall, the results suggest that the model has an acceptable model fit for Ownership and Relative Time of Adoption (RTA) in China and Taiwan. Further, in order to test the mediating effects, the SEM analysis is run for each mediator one at a time. The structural coefficients are shown in Table 1. The results provide no support of H1a and H1b that the degree of consumer innate innovativeness was found to have no influence on really new product adoption in China and Taiwan. The path from DSI to really new product adoption was significant in China (β= .206, $t = 1.948$, $p<0.05$ for Ownership;β= .317, $t = 3.029$, $p<0.01$ for RTA) and Taiwan (β= .459, $t = 2.981$, $p<0.01$ for Ownership;β= .418, $t = 2.644$, $p<0.01$ for RTA). As a result, H2a and H2b were supported. The result consists with the literature review of DSI directly influences the adoption of product innovations (Hynes and Lo, 2006). In terms of vicarious innovativeness, only Advertising was found to have a direct effect on really new product adoption for both China (Ownership:β= .430, $t = 2.857$, $p<0.01$; RTA:β= .324, $t = 2.243$, $p<0.01$) and Taiwan. (Ownership:β= .219, $t = 3.245$, $p<0.001$; RTA:β= .144, $t = 2.330$, $p<0.05$). In addition, the calculation of mediating effects of DSI and VI supports H3 in China (Ownership:β= .245; $t = 2.227$, $p<0.01$); RTA:β= .318; $t = 2.224$, $p<0.05$) and Taiwan (Ownership:β= .346; $t = 1.966$, $p<0.05$); RTA:β= .333; $t = 2.220$, $p<0.05$). This suggests that DSI mediates the relationship between CII and both Ownership and Relative Time of Adoption. Surprisingly, CII was found to have a significant and negative relationship with the three communication factors of vicarious innovativeness. The results were not consistent with Im, Mason, and Houston's (2007) work.

Discussion and Future Research Direction

The research makes a contribution by identifying the relationships among consumer innate innovativeness, domain specific innovativeness, vicarious innovativeness and really new product adoption, and further provides theoretical clarification in defining consumer innovativeness. That is, consumer innate innovativeness is not the appropriate predictor of really new product adoption. The results thus are consistent with the findings of Foxall and Bhate (1992), Goldsmith, Freiden, and Eastman (1995), and Im, Mason and Houston (2007) which suggest that consumer innate innovativeness does not directly influence adoption behaviour in a particular product category, and the findings of Goldsmith, Freiden, and Eastman (1995) and Im, Bayus, and Mason (2003) which indicated CII is weakly related to adoption behaviour. The results also confirm that domain specific innovativeness directly influence adoption behaviour of really new products. When introducing really new products, marketers need to be aware of that the level of consumer innovativeness varies depends upon product categories. The second contribution is that this study undertook a rigorous statistical validation for the four measurement scales in China and Taiwan. In the study, these three scales were suggested to generalize sufficiently in the two countries with Chinese cultural background. The results also posit that domain specific innovativeness plays a mediating role between consumer innate innovativeness and really new product adoption. Domain specific

innovativeness was found to enhance really new product adoption behaviour. Further, marketers should understand that when introducing new products, advertising is the most important tool to generate product awareness and enhance adoption behaviour in China and Taiwan.

Table 1: Direct and Mediating Effects on Really New Product Adoption for the Integrated Model –China and Taiwan

Hypothesis	Ownership and RTA	
	Regression Coefficient (t-value)	
	China	Taiwan
Direct Effects		
Consumer Innate Innovativeness (CII)		
CII→DSI	.379**(2.865)	.719***(6.177)
CII→Advertising	-.582***(-3.460)	-.302*(-2.546)
CII→Modeling	-.929***(-3.730)	-.569***(-5.851)
CII→WOM	-.577***(-3.619)	-.451***(-4.925)
CII→Ownership	1.384(.876)	-.130(-.644)
CII→RTA	1.347(.875)	.023(.124)
Domain Specific Innovativeness (DSI)		
DSI→Ownership	.206*(1.948)	.459**(2.981)
DSI→RTA	.317**(3.029)	.418**(2.644)
Vicarious Innovativeness (VI)		
Advertising→Ownership	.430**(2.857)	.219***(3.245)
Modeling→Ownership	.961(.688)	-.011(-.111)
WOM→Ownership	.157(1.122)	-.117(-1.419)
Advertising→RTA	.324**(2.243)	.144*(2.330)
Modeling→RTA	.945(.695)	.084(.969)
WOM→RTA	.323**(2.308)	-.120(-1.560)
Mediating Effects		
Ownership		
CII→DSI→Ownership	.245**(2.227)	.346*(1.966)
CII→Advertising→Ownership	.033(.892)	-.078*(-1.200)
CII→Modeling→Ownership	.000(.000)	.012(.255)
CII→WOM→Ownership	.002(.153)	.008(.267)
Relative Time of Adoption (RTA)		
CII→DSI→RTA	.318*(2.224)	.333*(2.220)
CII→Advertising→RTA	-.002(-.143)	-.064(-1.561)
CII→Modeling→RTA	.000(.000)	-.012(-.218)
CII→WOM→RTA	-.008(-.571)	.008(.308)

*=p<0.05, **=p<0.01, ***=p<0.001
t-tests are one tail tests because the hypotheses were directional so cut off point t=1.65

Further investigations need to be given to understanding the constructs of domain specific innovativeness scale interpreted in different countries, especially non-English speaking countries. The research finds that vicarious innovativeness has no mediating effect on the relationship between CII and really new product adoption, and only Advertising plays a role in predicting really new product adoption behaviour. This would suggest that vicarious innovativeness may play a moderating role rather than a mediating role. More research is needed to cross-validate the mediating role of domain specific innovativeness and moderating role of vicarious innovativeness. Further, the findings may be limited to the categories of really new consumer electronic products investigated in the study. Future research should examine other product categories and/or really new services to expand the scope of this research field.

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