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**Information search and product knowledge: Differences between shopaholics and general shoppers in Britain and Taiwan**

**Hui-Yi Lo, Yuan Ze University, Taiwan**  
**Nigel Harvey, University College London, UK**  
**Mary Thomson, Glasgow Caledonian University, UK**

**Corresponding Author: Hui-Yi Lo** is an Assistant Professor of Marketing in the College of Management at Yuan Ze University, Taiwan. Her research interests include shopping disorder, psychology of consumption, service innovation, and research methodology.

**Address:** College of Management, Yuan Ze University, 135 Yuan-Tung Road, Chung-Li City, 32003, Taiwan.

**Telephone Number:** +886-3-463-8800 ext2093

**E-mail Address:** [huiyi.lo@saturn.yzu.edu.tw](mailto:huiyi.lo@saturn.yzu.edu.tw)

**2<sup>nd</sup> Author: Nigel Harvey** is a Professor of Judgment and Decision Research in the Division of Psychology and Language Sciences at University College London, UK. His research interests include judgement and decision making, the role of judgement in forecasting, advice giving and taking, and taking risks on the basis of time series information

**Address:** The Department of Psychology, University College London, Gower Street, London, WC1E 6BT, UK.

**Telephone Number:** +44 20 7679 5387

E-mail Address: [n.harvey@ucl.ac.uk](mailto:n.harvey@ucl.ac.uk)

**3<sup>rd</sup> Author: Mary Thomson** is a Reader in the Department of Psychology at Glasgow Caledonian University, UK. Her main research interests include: the quality of decision making, forecasting with judgement, decision support systems, and risk perception and communication.

**Address:** Glasgow Caledonian University, Cowcaddens Road, Glasgow, G4 0BA, Scotland, UK

**Telephone Number:** +44 141 331 3855

**E-mail Address:** [M.Thomson@gcal.ac.uk](mailto:M.Thomson@gcal.ac.uk)

## **Information search and product knowledge: Differences between shopaholics and general shoppers in Britain and Taiwan**

### **Abstract**

This study examines shopaholics in Britain and Taiwan, focusing on the role of information search and product knowledge. Specifically, we compare the levels of compulsiveness in shopaholics in both nations and seek to explain why, in comparison to normal shoppers, such individuals require less information about the products they buy. The article reports two online studies designed to address these issues. The first study showed that shopaholics in Taiwan scored higher on measures of compulsive buying than those in the United Kingdom and, in contrast to their British counterparts, they were more knowledgeable about products than normal shoppers. The second study showed that, for luxury products, poor knowledge increased the need for information and that shopaholics' lower need for information could be partially explained by their better product knowledge. For non-luxury products, poor knowledge did not increase the need for information. Implications of these findings for the design of website advertisements are discussed and related suggestions are provided for future research.

**Keywords: Shopaholics, compulsive buying, information search, product knowledge, cross-cultural comparison**

## Introduction

Shopping disorder has received considerable research attention in recent decades and has been discussed extensively in the literature under a variety of names, including oniomania, compulsive shopping, shopaholic behaviour, buying mania and addictive buying. Essentially its symptoms are characterized by “excessive shopping cognitions and buying behaviour that leads to distress or impairment” (Black, 2007, p.14). Studies have examined a wide range of psychological variables associated with the disorder, such as self-image, low self esteem, depression and anxiety (e.g., Faber & O'Guinn, 1992; Faber, 2004; Shahjehan, Qureshi, Zeb & Saifullah, 2012), eating disorder symptoms (e.g., Claes & Bijttebiera, Mitchell, de Zwaan & Muellerc, 2011), and self-regulatory failure (e.g., Claes, Bijttebier, Van Den Eynde, Mitchell, Faber, de Zwaan & Mueller, 2010). Compulsive buying behaviour has also been investigated as an individual difference variable that affects people across situations (e.g., Goldsmith, Flynn & Clark, 2012). Focusing on differences in relation to culture, the present study falls into the latter category.

The examination of cultural influences in consumer behaviour has been the focus of much research attention in recent years. This has been largely motivated by the ever-expanding globalized marketplace brought about by e-commerce (Liu, 2010). One striking observation in this context has been the dramatic rise in the purchase of luxury goods in the Far East. For example, LVMH (Louis Vuitton Moet Hennessy), which is engaged in the business of production and retailing of luxury goods, reports that, in Asia, their progress year on year demonstrates their success in increasing the number of consumers in the region who are accessing the luxury goods market and recognizing quality. In 2009, the Asia Pacific HNWI (High Net Worth Individuals) population rose 25.8% overall to three million, catching up with Europe for the first time. In 2009, the Asia-Pacific region contained eight of the 10 economies with the

highest growth in HNWI population, led by Hong Kong. The other Asia-Pacific economies in the global top 10 list were India, Taiwan, Australia, Singapore and Indonesia, in that order (Datamonitor, 2010). By geographic region of delivery, the contribution of Europe (excluding France = 12%) remained stable at 21%, while that of Asia (excluding Japan = 8%) rose by 2 points to 27% in 2011 (LVHM, 2011). Relatively speaking, the market for luxury goods is much bigger in Asia. Why should this be?

One possibility is that it relates to Wong and Ahuvia's (1998) assertion that Confucian societies place more emphasis on the importance of displaying ownership of products that are fashionable or symbolic of high status than Western societies do. This claim is based on the fact that East Asian societies share a collective cultural tradition, which leads to an interdependent understanding of the *self* that stresses social roles and public perceptions as pivotal to one's identity, and, in turn, leads to the Asian focus on *face* (Ho, 1976). According to Redding and Ng (1983), this concept causes an increased concern about how one is perceived by others and with the preservation of one's social standing. The aspect of face applicable to materialism is referred to as *mien-tzu*, which represents a "reputation achieved through getting on in life through success and ostentation" (Hu, 1944, p.45). As pointed out by Zheng (1992, p.110-112), the need to uphold *mien-tzu* in Asian societies produces perpetually increasing beliefs regarding the possessions that are required to preserve a socially acceptable appearance, and when "super-achievers begin their conspicuous consumption, the effects cascade down to people in middle and lower class segments, who feel the pressure to keep up". This kind of situation clearly has the potential to lead to considerable social anxiety among Asian people (Abe, Bagozzi & Sadarangani, 1996), an anxiety that they would strive to reduce. Therefore, buying luxury goods in these circumstances could be interpreted as a coping strategy.

Hofstede (1980, 2005) provided the theoretical foundation for the examination of culture driven behaviour, identifying five dichotomous dimensions (i.e., *individualism-collectivism, power distance, masculinity-femininity, uncertainty avoidance* and *long term orientation*) to account for differences in core values. This approach has been extensively used by consumer researchers to explain and predict behaviour (e.g., Aaker & Maheswaran, 1997; Aaker & Schmitt, 2001; Albers-Miller & Gelb, 1996; Blodgett, Hill & Bakir, 2006; Dawar & Parker, 1994; Han & Shavit, 1994; Jap, 2010; Kim & Markus, 1999; Watchravesringkan & Yurchisin, 2007). Jap (2010), for example, utilized the concept of face and two of Hofstede's original dimensions to formulate research questions regarding Chinese attitudes toward global brands. Specifically, he explored how face culture and Hofstede's power distance (i.e., the extent to which subordinates expect and accept power inequality) and individualism-collectivism (i.e. the relative extent to which people value themselves and their groups/organizations) concepts influence Chinese consumption attitudes toward global brands. He found these concepts to have a strong influence on purchasing perceptions. For example, in terms of the face concept, respondents perceived that the consumption of global brands would attract more direct and immediate attention, recognition, acceptance and respect. In terms of power distance, most respondents thought that buying global products would enhance their social status. Similarly, in relation to individualism-collectivism, most respondents wished to *follow the herd*, owing to a need to conform to in-groups, or a desire for social acceptance and recognition, or a lack of knowledge.

We should note that, despite its popularity and support, Hofstede's approach has been criticised on two grounds. First, recent research (e.g., Bearden, Money & Nevins, 2006; Sharma, 2010; Triandis & Gelfand, 1998) has identified additional intricate, multidimensional structures to replace the previously assumed bipolar

dimensions. The dimension of individualism-collectivism has generated the most criticism in this respect (Briley, 2009; Oyserman, Coon & Kemmelmeier, 2002). Second, cultural values can change over relatively short periods of time (Briley, 2009) and, like all judgments and decisions (Lichtenstein & Slovic, 2006; Loewenstein, 2007, Plous, 1993), they show dependence on context and method of elicitation. For example, Briley and Aaker (2006) found the influence of cultural knowledge on judgments to be at its most powerful when responses are automatic and to be at its weakest when participants deliberate before responding.

These criticisms suggest that Hofstede's (1980, 2005) approach requires elaboration rather than dismissal. It remains relevant to the aims of our present study. More specifically, it implies that levels of compulsiveness in British and Taiwanese shopaholics may differ. We examined whether they do and sought to interpret why, in comparison to normal shoppers, shopaholics may require less information about the products they buy.

### **Conceptual Framework and Development of Hypotheses**

The present study takes account of the above evidence in its formulation of research questions regarding potential differences in compulsive buying among individuals from the Far East and Britain. Indeed, there are important commonalities among the variables associated with compulsive buying behaviour and consumer purchasing in Asia. One such commonality relates to the findings that compulsive buyers (i.e. shopaholics) from Western and Eastern nations (O'Guinn & Faber, 1989; Lo & Harvey, 2011) tend to purchase luxury goods. Other associations are that, in both situations, the buying is linked to the self concept and is a coping mechanism (e.g Hofstede, 1980; Zheng, 1992).

Accordingly, our first research question focuses on whether or not shoppers are more compulsive in Taiwan than in Britain. We suspect that they will be so, given

that they are susceptible to additional triggers, such as those arising from Hofstede's power distance and individualism-collectivism concepts discussed above. Indeed, in Hofstede's early work, Taiwan was rated as a medium/high power distance culture and a high collectivist culture whereas Britain was rated as a low power distance culture and one of the highest individualistic cultures. Furthermore, we would not expect the criticisms of Hofstede's approach, in relation to the dynamic and context-driven nature of cultural influence to affect this factor, given Jap's (2010) recent support for these concepts in similar circumstances and given that the absence of situational influences in the present study is likely to heighten culture-driven cognitions (Briley, 2009). Therefore, this study tested the following hypothesis:

H1: Taiwanese shopaholics are prone to be more compulsive than British shopaholics.

In relation to compulsive buying behaviour, the present study is also concerned with the search for product information and levels of product knowledge, and how these cognitive components might vary between the two nations. We suspect that shopaholics are likely to have accumulated greater product knowledge than their non-compulsive counterparts. Shopaholics may have particularly extensive knowledge about certain brands within the class of products that they are driven to buy and they may base their buying decisions on their loyalty to those brands, satisfying both extrinsic (e.g., functional benefits) and intrinsic (e.g., self-identity and self-image) needs (Liu, 2010). However, this enhanced knowledge is likely to be product and gender specific because female shopaholics tend to spend more on clothes and jewellery while male shopaholics tend to spend more on cars and electronics (O'Guinn & Faber, 1989), and they both buy items that they associate with designer products and prestigious brand names (Lejoyeux et al., 2007; Lo & Harvey, 2011). Thus shopaholics are likely to accumulate greater knowledge of certain

specific products than general shoppers. Furthermore, given the additional cultural triggers discussed above, Taiwanese and British shopaholics are also likely to be different in their knowledge of such products. Thus, we tested:

H2: Shopaholics tend to accrue greater knowledge of luxury products than general shoppers.

H3: Taiwanese shopaholics tend to accrue greater knowledge of luxury products than British shopaholics.

Although previous studies have shown that shopaholics focus on particular categories of product and certain brands within those categories, we still do not know how much knowledge they have of what they buy or why they spend less time seeking information about products. Previous literature on the relationship between information search and knowledge has focussed only on ordinary shoppers. This research has produced contradictory findings, with results variously indicating negative relationships (e.g., Coupey, Irwin & Payne, 1998), positive relationships (e.g., Punj & Staelin, 1983) and inverted -U- functions (Brucks, 1985; Gursoy, 2003; Johnson & Russo, 1984).

Gursoy and Mcleary (2004) suggest that the mixed findings have resulted from the treatment of prior knowledge as a single dimensional construct, rather than a two dimensional one. According to Alba and Hutchinson (1987), prior knowledge consists of both familiarity and expertise, with the former representing subjective knowledge gained in the early stages of learning and the latter representing objective knowledge gained in the later stages of learning. High objective expertise has also been found to facilitate the acquisition of new information into memory, permitting such consumers to use information more efficiently (Brucks, 1985) with little cognitive effort (Cowley & Mitchell, 2003). Given this evidence, it seems plausible that shopaholics, with their higher levels of objective expertise, spend less time searching for information about



products than normal shoppers owing to highly organized product-related knowledge structures. However, as discussed above in relation to H2 and H3, this is more likely to be the case with luxury products and in Taiwanese culture.

In any case, information search is an important step in consumers' buying processes. It allows them to develop knowledge about brands and products. They can then use this knowledge to interpret product information, and to make choices. The need for information is related to whether the level of current knowledge is sufficient to make purchasing decisions. If it is insufficient, additional information may be sought. Relevant knowledge includes existing brand loyalties and the characteristics of the alternative products.

These considerations led us to address the following questions. Do shopaholics seek less information about brands or products than normal shoppers? In other words, does an individual's product knowledge mediate the effects of compulsive buying behaviour on need for information? Do product knowledge and need for information differentiate shopaholics from general shoppers, and does the significance of these cognitive factors vary according to culture? Based on the above considerations, we expected that the relations between product knowledge and need for information will differentiate shopaholics from general shoppers. These two elements will also vary between Taiwanese and British. Additionally, existing product knowledge may assist shoppers in making decisions about their information searching behaviour. As mentioned earlier, we assumed that shopaholics are likely to accrue greater knowledge of luxury products than general shoppers. Thus, this existing product knowledge may mediate the effects of compulsive buying behaviour on need for information. Therefore, we tested:

H4: Shopaholics have greater product knowledge and need less information than general shoppers.

H5: Product knowledge and need for information will vary according to product category and culture. For luxury products (but not mundane ones), lower product knowledge will increase information search. However, those products perceived as luxury ones will vary according to culture.

H6: Product knowledge mediates the effects of compulsive buying behaviour on need for information in a way that varies across culture and product category.

Specifically:

a: Compulsive buying behaviour affects consumers' product knowledge.

b: Abundant knowledge reduces need for information.

c: Compulsive buying behaviour affects need for information after controlling for the effects of product knowledge.

## **Methodology**

To test our hypotheses, we examined decisions made by shopaholics and general shoppers within a web-based simulated shopping environment (Maimaran & Wheeler, 2008; Lo, 2009; Lo & Harvey, 2011). In two studies, British and Taiwanese respondents were gathered over one month via the Internet. Web-links for the two experiments were placed on several Taiwanese and British discussion forums and web-based experiment websites (college subject pools, the Google discussion forum, the Yahoo knowledge forum, community overview-ebay, the campus discussion forum, online psychology research UK and psychological research on the net). In each study, participants were informed that, by registering and participating in the entire experiment, they would be entered in a prize draw lottery. Winners were notified by email.

Faber and O'Guinn's (1992) Compulsive Buying Scale (CBS) was used to distinguish shopaholics from the general population. This consists of seven items, and uses a 5-point Likert scale to assess frequency or degree of agreement with statements

such as: *“If I have any money left at the end of the pay period I just have to spend it.”*

Two of the seven items pertain to emotional reactions to shopping (e.g., *make oneself feel better or feeling anxious when not buying*). The remaining five relate to financial aspects of buying. The seven items represent specific behaviours, motivations and feelings associated with compulsive buying. The total scores can be expressed as the probability of being in the shopaholic group. Alternatively, a cut-off point  $\leq -1.34$  can be used to identify whether an individual is a member of the shopaholic group or the general population comparison group (Faber & O'Guinn, 1992).

The self-assessment scale of Faber and O'Guinn (1992) is designed to identify people who are driven to buy in order to make themselves feel better. Arguably, there are problems with this approach. However, several studies (e.g., Magee, 1994; Faber, Christenson, Zwaan & Mitchell, 1995; Roberts, 1998; Roberts & Jones, 2001) have shown that Faber and O'Guinn's (1992) CBS is a reliable screening device and that it distinguishes between shopaholics and the general population reasonably well. The scale has also been externally validated against shopping behaviours characteristic of compulsive buying by Lo and Harvey (2011).

Besides being used as a screening device to distinguish normal from compulsive shoppers, the CBS scale can be used in a more continuous fashion to assess the degree to which an individual is prone to compulsive shopping behaviour. It was used in both these ways in our studies.

## **Study 1**

### **Participants**

Respondents who failed to complete the experiment or had completed it previously were categorized as invalid. The total number of British respondents (707) included 536 valid ones (76%) and 186 invalid ones. The total number of Taiwanese participants (250) consisted of 203 valid ones (81%) and 47 invalid ones. The valid

British respondents were 39% male and 61% female and 12.13% were shopaholics (4.29% Male and 7.84% Female). Most annual incomes of British shopaholics were in categories £ 9,999 and below (56 of 65). The valid Taiwanese respondents were 43% male and 57% female and 15.76% were shopaholics (7.39% Male and 8.37% Female). The monthly income of most Taiwanese shopaholics was either in below NTD 25000 (i.e., approx. £531) category or in the “NTD 35001-45000 (i.e., approx. £745-£957)” category.

Both samples had demographic characteristics that are consistent with the literature: compulsive buying behaviour tends to be restricted to middle-income or low-income individuals (Faber et al., 1987; Faber & O'Guinn, 1992) and women tend to exhibit it more often than men (O'Guinn & Faber, 1989; Schlosser et al., 1994).

With regard to compulsive buying, Taiwanese shopaholics ( $M = -3.46$ ) tended to be more compulsive than British shopaholics ( $M = -2.54$ ;  $t(95) = 4.01$ ,  $p < .001$ , two-tailed). This finding supports H1.

## **Research Design**

The first study used matching tasks (Figure 1). Twenty items that included handbags, shoes, laptops, digital cameras and similar products were used to test participants' product knowledge. Participants had to match one of four descriptions with one aspect of the product as follows: 1) a product with one of four descriptions; 2) a brand logo with one of four brand names; or 3) a product with one of four brand names. The first type of matching consisted of three luxury products and 11 non-luxury products. The second and the third types of matching comprised six luxury items (type II: 3 items, type III: 3 items). Thus, the total of 20 items consisted of 11 non-luxury items and 9 luxury items presented in random order. If participants gave the correct answer, they scored one point. If they gave an incorrect answer, they lost one point. They did not learn about their scores during the task but their final

score was shown to them immediately after they had finished it (Figure 1).

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Figure 1 about here  
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## Results

To address the second and the third hypotheses, an analysis of variance was used to examine the effects of compulsive shopping behaviour and nationality on knowledge of luxury goods and to investigate whether there was any interaction between these variables. Compulsive shopping behaviour ( $F(1,735) = 51.59, p < .001, \omega^2 = 0.02$ )<sup>1</sup>, nationality ( $F(1,735) = 72.52, p < .001, \omega^2 = 0.04$ ) and their interaction ( $F(1,735) = 55.86, p < .001, \omega^2 = 0.02$ ) all had significant effects on shoppers' knowledge of luxury products. As predicted by H3, Scheffé's test indicated that Taiwanese shopaholics ( $M = 0.667$ ) had better knowledge of luxury goods than British shopaholics ( $M = 0.368$ ). This test also indicated that Taiwanese shopaholics had more knowledge than Taiwanese normal shoppers ( $M = 0.393$ ). However, there was no significant difference in product knowledge between Taiwanese normal shoppers and both British shopaholics and British normal shoppers ( $M = 0.373$ ; Figure 2). Thus, our findings supported H3 and partially supported H2.

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Figure 2 about here  
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## Study 2

Study 1 showed that Taiwanese shopaholics had more knowledge about products than the other groups under consideration. In this second study, we addressed the remaining three hypotheses (H4 - H6). This involved investigating the relationship between participants' existing knowledge about products and their need for

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<sup>1</sup>  $\omega^2 \geq 0.01$  indicates small;  $\omega^2 \geq 0.059$  indicates medium;  $\omega^2 \geq 0.138$  indicates large (Kirk, 1996).

information about the same products. We examined whether this relationship depends on the category of product and whether it differs between shopaholics and normal shoppers.

We used four types of product<sup>2</sup>. They varied in whether they represented luxury products, mundane functional products, or products that were of somewhat ambiguous status. We define luxury products in terms of three criteria: they are expensive; they are associated with desirable brands; and their basic function can be accomplished by much cheaper alternatives. Products associated with one of the brands (Louis Vuitton bags) clearly fulfilled these criteria: they were unequivocally luxury products. Those associated with two other brands (Nike sports shoes; Canon digital cameras) did not: they represented relatively functional products that provide reasonably good value for money. The status of the Sony products is more ambiguous. The Sony brand is generally regarded as desirable, with some of its sub-brands (e.g. Vaio lap-top computers) especially so. Also, in relation to the alternatives, Sony products are not as expensive as Louis Vuitton bags are. If these products are regarded as luxuries, the pattern of results obtained for them will be similar to that obtained for Louis Vuitton bags. However, if they are not perceived in that way, the pattern of results will be more like that obtained for Nike sports shoes and Canon digital cameras.

We expected that, in the absence of financial constraints, our participants would be especially interested in buying luxury brands and that evidence of this would be greater in a Taiwanese sample (Wong & Ahuvia, 1998; Lo & Harvey, 2011) and in shopaholics (O'Guinn & Faber, 1989; Lo & Harvey, 2011). If all or most of those in a

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<sup>2</sup> We selected two of the 11 non-luxury product series (i.e., Nike shoes series, Canon digital camera series) and two of the nine luxury product series (i.e. Louis Vuitton bag series, Sony series) from those that were used in Study 1. Each series comprised three products. Then we carried out a pre-test. For each of the 12 products, 45 participants were given brief descriptions and asked to rate them on both a luxury scale (e.g., conspicuousness, uniqueness, quality) (Vigneron & Johnson, 2004) and a utilitarian scale (e.g., effective, useful, functional, necessary) (Gammoh, Voss, & Chakraborty, 2006; Voss, Spangenberg, & Grohmann, 2003; Okada, 2005). The Nike series and Canon series were clearly identified as functional items. The Louis Vuitton bag series were identified as luxury items but products in the Sony series were seen as ambiguous.

sample are interested in buying a product, we can expect that those with little knowledge will want much more information and only those with plenty of information already will not want more. Thus we expect this relation to appear for Louis Vuitton bags and, possibly, for Sony products.

In contrast, if all or most of those in a sample is not interested in buying a product, they will not want more information about it whatever their level of current knowledge: as a result, there will be no relation between current level of knowledge about a product and judged sufficiency of the information provided about it. This is what we expect to find for Nike shoes and Canon digital cameras.

For Sony products, there may be a difference in the relationship between product knowledge and need for information in the Taiwanese and British samples. If Taiwanese participants are more materialistic (Wong & Ahuvia, 1998), many more of them may treat Sony products as luxury items. As a result, the relation between product knowledge and need for information may be similar to that obtained for Louis Vuitton bags for this group. In contrast, for British participants, it may be closer to that expected for Canon digital cameras and Nike sports shoes.

For the reasons we outlined earlier, we expect that, compared with normal shoppers, shopaholics will have greater knowledge of luxury products and will be less likely to need additional information before buying them. If we obtain this pattern of results, we shall carry out mediation analyses to assess the extent to which their lack of need for additional information is mediated by their superior product knowledge. We do not expect shopaholics to differ from normal shoppers in their knowledge of non-luxury products. However, considering the brand perceptions of different nationalities, predictions for Sony products are less easy to formulate.

## **Participants**

Samples of respondents were gathered over a period of 40 days. In order to

control participants' knowledge, an invitation email was used to recruit participants who had participated in the Study 1. Participants were informed that, if they participated in the experiment, they would have a chance to win an 8G USB memory stick. The winners were notified by e-mail. Data were gathered from individuals who registered their email and had completed Study 1. The samples were again drawn from Taiwanese and British populations. Data from 125 British participants were collected. There were 89 valid data sets (71%) and 36 invalid data sets. The 130 Taiwanese respondents comprised 93 valid respondents (72%) and 37 invalid ones.

The valid British respondents were 43.8% male and 56.2% female. The percentage of the British shopaholics in this experiment was 17.98% of which 5.62% were male and 12.36% were female. Annual incomes of shopaholics were in categories £ 9,999 and below (16 of 16). The valid Taiwanese respondents were 62.4% male and 37.6% female. The percentage of shopaholics was 18.28% of which 6.45% were Male and 11.83% were Female. The monthly income of most shopaholics was either in the "NTD 35001-45,000" category (5 of 17) or in the "NTD 45001-55000" category (5 of 17).

In this study, the difference in CBS score between Taiwanese shopaholics ( $M = -2.88$ ) and British shopaholics ( $M = -2.45$ ) was in the expected direction but was both numerically smaller than before and failed to reach significance. We suspect that this was primarily due to the fact that an invitation email to participants who had been in the first study was used for recruitment. It is likely that this made shopaholics sensitive to our focus on their problem. As a result, those who were more affected by it were less willing to participate in another experiment.

## **Research Design**

Faber and O'Guinn's (1992) CBS scale was again used to distinguish compulsive from non-compulsive shoppers. In the experiment, there were two tasks: judgments of



the need for information when buying products, and a product knowledge test. The first judgment task was designed to examine need for information. We asked participants to imagine they were considering purchasing the products shown in an online shop. There were four series of products (Louis Vuitton bag series, Nike shoes series, Canon Digital Camera series, and Sony series). Each series comprised three products. For each of the 12 products, participants were given brief descriptions and asked to rate whether the information they had was sufficient (Figure 3).

The second part of the study comprised two types of matching task. We used the same 12 products and selected different descriptions to test participants' product knowledge. For the bag series, shoe series and camera series, participants matched products to their descriptions. For Sony series, they decided whether the descriptions had been correctly matched with products (Figure 4)<sup>3</sup>.

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Figures 3 and 4 about here  
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## Results

We consider whether shopaholics and normal shoppers differ in their need for product information, whether they differ in their product knowledge, and whether differences in their knowledge provide a complete explanation for differences in their need for product information.

**Relations between need for product information and product knowledge.** A separate three-way ANOVA was carried out for each of the four product categories on the need for information (Figure 5). Independent variables were shopaholics versus normal shoppers, English versus Taiwanese participants, and whether current product

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<sup>3</sup> The design of the task for the Sony series differed from that of the other series because the three Sony products came from different product categories (laptop, DVD player and Camcorder). Identifying descriptions was more appropriate for testing participants' product knowledge in this situation.

knowledge was correct or incorrect<sup>4</sup> (2x2x2).

Poor knowledge of Louis Vuitton bags increased the need for information about them. The need for information was judged to be lower when participants already had a good knowledge of products than when they did not ( $F(1, 174) = 39.44, p < .001, \omega^2 = 0.095$ ) and when they were shopaholics than when they were not ( $F(1, 174) = 65.72, p < .001, \omega^2 = 0.16$ ).

The difference between shopaholics and normal shoppers was, on average, larger in the British sample ( $F(1, 174) = 15.30, p < .001, \omega^2 = 0.04$ ). Furthermore, when knowledge of these products was poor, Taiwanese people had a greater need for knowledge about them ( $F(1, 174) = 8.19; p < .01, \omega^2 = 0.02$ ). This is consistent with their greater need to buy them.

These findings imply that poor knowledge of bags increased the need for information about bags. This is what we would expect to find when participants are interested in purchasing products. When people are interested in buying things, they want to reduce their ignorance about them and, when they are more interested in buying them, they are keener to reduce that ignorance. Louis Vuitton bags were luxury goods that British and, to an even greater extent, Taiwanese participants were interested in buying.

For Sony products, there was a main effect of product knowledge ( $F(1, 174) = 6.32; p < .05, \omega^2 = 0.02$ ) and an interaction between this variable and nationality ( $F(1, 174) = 9.95, p = .002, \omega^2 = 0.04$ ). For Taiwanese but not for British participants, poorer knowledge of Sony products led them to want additional information, whereas good knowledge of Sony products led them judge the provided information to be sufficient (Figure 5). Thus, for Taiwanese participants, the pattern for Sony products

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<sup>4</sup> In each product category, each participant could be correct on zero, one, two, or three items. For each category, a K-Means clustering analysis showed that participants could be significantly partitioned into incorrect and correct knowledge groups by classifying those with an average score of less than two points in the former group and the remainder in the latter one.

followed that found for Louis Vuitton bags. This is consistent with Taiwanese participants considering Sony products as luxury purchases.

For Nike shoes, there were main effects of nationality ( $F(1, 174) = 19.19, p < .001, \omega^2 = 0.08$ ) and whether shopping was compulsive ( $F(1, 174) = 20.88, p < .001, \omega^2 = 0.09$ ), together with an interaction between these variables ( $F(1, 174) = 12.52, p < .001, \omega^2 = 0.05$ ). This interaction arose because, in comparison with Taiwanese shopaholics, British shopaholics who had a poorer knowledge of the products were more likely to deem that information sufficient (Figure 5).

Finally, for Canon digital cameras, results showed that shopaholics needed significantly less information than normal shoppers whatever their level of knowledge about those products ( $F(1, 174) = 20.94, p < .001, \omega^2 = 0.096$ ). This implies that shopaholics do not care as much about the characteristics of these products as normal shoppers (Figure 5).

We can summarise the above results as follows. First, for unambiguously luxury products (Louis Vuitton bags), people who had lower product knowledge wanted more information. Second, this same pattern was found for Sony products in Taiwan, a finding that implies that they are treated as luxury products in that country. In other words, these two outcomes indicated that the relations between product knowledge and need for information varied according to culture and product category. Thus H5 was supported. Third, shopaholics generally required less information about products than normal shoppers and this was particularly true of those who were British. This outcome supports H4.

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 Figure 5 about here  
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**The effects of compulsive buying behaviour on need for information: A mediated effect of product knowledge.** The above results show that shopaholics

needed little information about products. However, it would be useful to identify the causal paths between need for product information, product knowledge, and compulsive buying behaviour.

Mediation analysis (Baron & Keeny, 1986; Judd & Keeny, 1981; Kenny et al, 2003) was used to clarify the extent to which reduced need for information can be explained in terms of greater knowledge. To test for mediation, a number of regression models were estimated. To identify the degree of mediation, we first regressed the need for information on to CBS score, then regressed product knowledge on to CBS, and finally regressed need for information on to both product knowledge and CBS score. The degree to which the influence of CBS score on need for information is reduced when accounting for the influence of product knowledge expresses the degree of mediation.

The results of these regression analyses are shown in the upper panel of Figure 6 for the UK sample. Product knowledge of LV bags did partially mediate the influence of the CBS score on need for information. Thus, (a) the CBS score predicted product knowledge ( $F(1,87)=9.49$ , regression weight =  $-.17$ ,  $p < .01$ ); (b) the CBS score predicted need for information ( $F(1,87)=117.89$ , regression weight =  $-.34$ ,  $p < .001$ ) (c) product knowledge predicted need for information ( $F(1,87)=16.62$ , regression weight =  $.33$ ,  $p < .001$ ) and (d) the influence of the CBS score on need for information dropped significantly when controlling for the effect of product knowledge ( $F(1,86) = 6.53$ , regression weight =  $-.32$ ,  $p = .013$ ). Thus, product knowledge partially mediated the relationship between the CBS score and need for Louis Vuitton bag information. However, the mediation, though significant, is not large.

For other products, the mediation model showed that there was no significant relationship between need for information about them and existing knowledge about them. Thus, mediation of the relation between participants' need for information and

their CBS score by their current knowledge about those cameras was not possible. For such products, participants with a greater compulsive buying tendency needed less information whether they had greater product knowledge or not.

Overall this analysis indicates that, for some product categories, British shoppers' product knowledge partially mediates the effects of compulsive buying behaviour on need for information. This result is consistent with H6.

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 Figure 6 about here  
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Results of the mediation analysis for the Taiwanese sample are shown in the middle and the lower panels of Figure 6. Product knowledge of LV bags did partially mediate the influence of the CBS score on need for information. Thus, (a) the CBS score predicted product knowledge ( $F(1,91)=48.21$ , regression weight =  $-.26$ ,  $p < .001$ ); (b) the CBS score predicted need for information ( $F(1,91)=35.32$ , regression weight =  $-.26$ ,  $p < .001$ ); (c) product knowledge predicted need for information ( $F(1,91)=53.02$ , regression weight =  $.68$ ,  $p < .001$ ) and (d) the influence of the CBS score on need for information dropped significantly when controlling for the effect of product knowledge ( $F(1,90)=20.39$ , regression weight =  $-.13$ ,  $p < .001$ ). These findings suggest that product knowledge about LV bags is strongly related to the need for information about them (regression weight =  $.68$ ), and that it significantly mediated the relationship between the CBS score and need for Louis Vuitton bag information (regression weight decreased from  $-.26$  to  $-.13$ ). This indicates that Louis Vuitton product knowledge helped Taiwanese shopaholics considerably reduce their need for Louis Vuitton bag information.

With reference to predicting the need for Sony product information, we used the same measures to test for mediation. The same regression models were estimated as before. The results of these regression analyses are shown in the lower panel of Figure

6. Product knowledge of Sony products did partially mediate the influence of the CBS score on need for information. Thus, (a) the CBS score predicted product knowledge ( $F(1,91)=14.15$ , regression weight =  $-.16$ ,  $p < .001$ ); (b) the CBS score predicted need for information ( $F(1,91)=19.05$ , regression weight =  $-.16$ ,  $p < .001$ ); (c) product knowledge predicted need for information ( $F(1,91)=66.38$ , regression weight =  $.52$ ,  $p < .001$ ) and (d) the influence of the CBS score on need for information dropped significantly when controlling for the effect of product knowledge ( $F(1,90)=47.32$ , regression weight =  $-.08$ ,  $p < .001$ ). Taken together, these findings suggest that greater product knowledge about Sony products decreased the need for information about them (regression weight =  $.52$ ) and that this significantly mediated the relationship between the CBS score and need for Sony product information (regression weight reduced from  $-.16$  to  $-.08$ ). This implies that their greater Sony product knowledge helped Taiwanese shopaholics to reduce their need for Sony product information.

Finally, with reference to Nike shoes and Canon cameras, the mediation model showed that there was no significant relationship between need for information and current knowledge. Thus, mediation of the relation between the need for information and the CBS score by knowledge of the products was not possible.

These findings showed that, for some product categories, product knowledge did partially mediate the influence of the CBS score on need for information. Thus H6 was also supported within the Taiwanese sample.

In summary, for luxury products (Louis Vuitton bags, Sony products in Taiwan), shopaholics' reduced need for information was partially but not completely explained by their greater product knowledge. For non-luxury products, people with a greater compulsive buying tendency needed less information than normal shoppers whether or not they had greater product knowledge. Taken together, these results suggest that,

compared to normal shoppers, shopaholics were even more interested in buying luxury products but even less interested in mundane ones.

## **Discussion**

This study extends prior research by examining the previously neglected role of information search and product knowledge in compulsive shoppers across two cultures. The novel design of the present study revealed some important insights into shopaholic behaviour. Additionally, while most research into shopaholic behaviour has emphasized the importance of distinguishing “compulsive” from “non-compulsive” consumption, it has not led to a better understanding of the underlying differences in information and knowledge between “general shoppers” and “shopaholics”. By employing a new methodology, this study makes an initial contribution to filling that lacuna.

Information concerning products is important in helping to guide consumers in their choice process. Information seeking can provide them with assistance that enables them to make better purchasing decisions. We found that greater product knowledge was associated with a reduced need for information for some products but that culture partially determined which products these were. More specifically, they comprised Louis Vuitton bags for both the Taiwanese and UK samples and Sony products for the Taiwanese sample (Figure 5). Our interpretation was that this relation between product knowledge and need for information holds when most participants in the sample are interested in purchasing the products. In the absence of financial constraints and specific needs to buy products for their functional characteristics, people are most likely to be interested in purchasing luxury products. Taiwanese participants may have been more likely to consider Sony products in the luxury category.

For other products, there was no relationship between product knowledge and

need for information. These products comprised Nike shoes and Canon digital cameras for both samples and Sony products for the UK sample. Our interpretation was that this pattern of results arose when most participants interpreted the products as primarily functional and were not interested in purchasing them within the experimental scenario.

Why does the difference between Taiwanese and UK participants occur for Sony products? Laptops produced in Taiwan accounted for 86.2% of market share in the global market in 2006; the country is world's largest producer of laptops (MIC, 2008). The laptop market is much more dynamic and competitive in Taiwan than in the UK. Taiwanese consumers are exposed to more information about new laptop products than their British counterparts. For example, there are several computer fairs, including local and global exhibitions, in Taiwan every year. In fact, survey data indicate that 56% of Taiwanese consumers obtain laptop information from computer fairs, and 68% of them obtain it from advertising (MIC, 2008). It is possible that the greater marketing effort in this more competitive environment has made Sony products more desirable in Taiwan than in the UK. In other words, they have a higher brand value in Taiwan (Liu, 2008). As a result of this, our Taiwanese participants were more likely to treat them like Louis Vuitton bags – as luxury products.

Broadly speaking, a tendency towards compulsive buying appears to exaggerate the effects that we have described. Thus, relative to normal shoppers, those with higher compulsive buying tendency had an even greater knowledge of luxury products (Louis Vuitton bags for both samples) and even less need for information about them (Figure 6). Furthermore this reduced need for knowledge was partially determined by their greater knowledge of the products (Figure 6). For products regarded as more functional (Nike shoes and Canon Digital Cameras), lower need for information in those with a higher compulsive buying tendency was not related to any



greater product knowledge on their part (Figure 5). These results imply that the difference between shopaholics and normal shoppers depends to a large degree on product type.

Shopaholics are prone to being highly materialistic (e.g., O'Guinn & Faber, 1989; Desarbo & Edwards, 1996; Dittmar, 2005). This may be one of the reasons for their well-developed product knowledge. They seek luxury products (e.g., Louis Vuitton bags) to satisfy their craving to buy; they accumulate abundant knowledge about those products.

The symbolic meaning of highly materialistic products or luxury brands may be viewed by shopaholics as indicative of high social class, high achievement, a good quality of life, and so forth. Presumably, the acquisition of luxury or highly materialistic commodities may boost shopaholics' self-esteem and maintain their sense of social status (O'Guinn & Faber, 1989; Zheng, 1992; Desarbo & Edwards, 1996). Over the long term, they accumulate their high-status product knowledge. Those high-status products satisfy their craving and enhance their confidence in buying those products. Brand loyalty therefore builds up during development of their buying habit. As a result, they need less information on those products when they make their purchases.

Wong and Ahuvia (1998) point out that consumption culture in Confucian societies is based on an interpersonal construal of self. Members of those societies tend to behave in ways that emphasize social roles and public perception. As a result, their consumers tend to place more emphasis on public or visible possessions than Western consumers. They more often use products symbolically to lay claim a desirable position within the socioeconomic hierarchy (Wong & Ahuvia, 1998). This may be why Taiwanese shopaholics are more compulsive than British shopaholics (Study 1). Perhaps, those high-status products provide Taiwanese shopaholics with

more gratification than British shoppers. As a result, they accumulate more knowledge about those products than British shopaholics. In terms of Wong and Ahuvia's (1998) argument, these cultural differences may have led to Taiwanese shopaholics having greater high-status product knowledge than their British counterparts.

### **Managerial Implications**

Marketers often need to take cultural, social, and psychological factors into account as consumers' wants and behaviours are influenced by their cultural background. Understanding cultural differences, such as those identified in the present study, is crucial for marketers in various contexts. Customers in the Far East tend to place more emphasis on public or visible possessions than those in Europe and their buying behaviour may be more strongly linked to social class. When they select products and services, their choices may be more strongly linked to what they symbolize in terms of materialistic success. These symbolic attributes may play an important role in consumer decisions because the evaluation of products is typically the result of what they mean rather than what they do. Therefore, marketers should emphasise different aspects of brands in different circumstances. For example, for those who operate within Confucian societies, it may be prudent to employ indirect, emotional appeals which symbolize the materialistic success associated with owning the product under consideration, as opposed to direct, Western-style, *rational* appeals which often emphasise the functional benefits of a product.

Additionally, marketers should pay special attention to how the way in which information is communicated affects consumers' impressions of products. For instance, using a strategy of sensory marketing (Krishna, In Press), website advertisements, should make good use of imagery. As pointed out by Hawkins, Best and Coney (1998, p.308), picture images have a "learned meaning beyond their direct

representation of reality. A picture is worth a thousand words not just because it may convey reality more efficiently than words but because it may convey meanings that words cannot adequately express". This may be particularly relevant for consumers with a tendency towards compulsive buying (such as those influenced to a greater extent by Confucian values), who are unlikely to be enticed by extensive amounts of written information.

The present results also have important implications for product positioning. Specifically, the observed difference between Taiwanese and UK participants for Sony products suggests that a product that is middle-of-the-road in the West may be perceived as a luxury product in the East. If this is the case, it may be highly profitable for similar products to position themselves as upmarket ones in the East.

With reference to psychological factors, shopaholics typically differ from other shoppers in various ways, such as having a more materialistic attitude. Our findings show that they also have a greater knowledge of luxury brands. They may acquire this knowledge incidentally because such products provide them more reward. Thus, global luxury retailing could recognise this superior knowledge in their designs and advertising to attract these consumers in particular. Marketers may also benefit from studying different types of shoppers and use these characteristics to segment their markets by using different brand names, such as Prada and Miu Miu.

On the negative side, our findings suggest that compulsive shopping is more of a problem in the East than in the West. Given the current economic and political changes in the East, which have resulted in vast discrepancies between rich and poor, compulsive shopping behaviour could well become an increasingly serious problem in the East, causing distress and misery for millions of individuals. Furthermore, the inherent cultural triggers discussed above are likely to exacerbate the situation, making it an extremely difficult problem to tackle. Nevertheless, relevant government

officials and policy makers should take steps to curb serious compulsive shopping behaviour by clearly communicating the potential risks associated with adhering to Confucian tradition.

### **Limitations and Future Studies**

While we have endeavoured to ensure that the above findings have some generality, they are, potentially, subject to some limitations. For example, the samples of participants in the two countries, though similar in terms of sex ratio and real income, may not have been perfectly comparable. Also, in Study 2, we used an invitation letter to recruit participants because we intended to control participants' knowledge. It is possible that this mode of recruitment selectively deterred those with more severe shopaholic problems. In future research, other types of recruitment would be preferable.

Our participants were aware that our studies were concerned with how much information they needed about the products they considered. This may have influenced their overall level of search behaviour. However, it is unlikely that it would have selectively increased search for certain types of product in those with particular CBS scores and particular levels of product knowledge. In other words, we think it unlikely that the singular pattern of results that we obtained here could be explained in terms of demand effects.

Future work could focus on website design to determine whether the most effective styles of advertising appeal (e.g., emotional versus rational) and the most effective combinations of imagery and words vary across cultures and product types.

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## Captions for Figures

Figure 1. Study 1: The Matching Task.

Figure 2. Study 1: The Effect of Compulsive Buying on the Knowledge of Luxury Goods (N=739).

Figure 3. Study 2: Testing the Need for Information.

Figure 4. Study 2: Testing Product Knowledge with Two Types of Matching Task.

Figure 5. Study 2: The Effect of Product Knowledge and Compulsive Buying on Need for Information.

Figure 6. Upper Panel: Mediation Model for Louis Vuitton Bags (British Participants)

Middle Panel: Mediation Model for Louis Vuitton bags (Taiwanese Participants)

Lower Panel: Mediation Model for Sony Products (Taiwanese Participants)

Figure 1

[Type 1: One product vs. Four descriptions]

Hi, test Your current score: -3

**ARCHOS Gmini 402 MP4 Player with Camcorder**

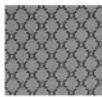
<input type="radio"/>		<input checked="" type="radio"/>
30Gb		20Gb
2.2"LCD		2.5" LCD
1.2 megapixel camera		1.0 megapixel camera
<input type="radio"/>		<input type="radio"/>
20Gb		30Gb
2.2" LCD		2.5"LCD
1.2 megapixel camera		1.0 megapixel camera

Next Product

[Type 2: One brand logo vs. Four brand names]

Hi, test Your current score: -4

**a brand logo and a matching brand name**


<input type="radio"/>		<input checked="" type="radio"/>
Diro		Gucci
<input type="radio"/>		Celine
FENDI		

NEXT ITEM

[Type3: One product vs. Four brand names]

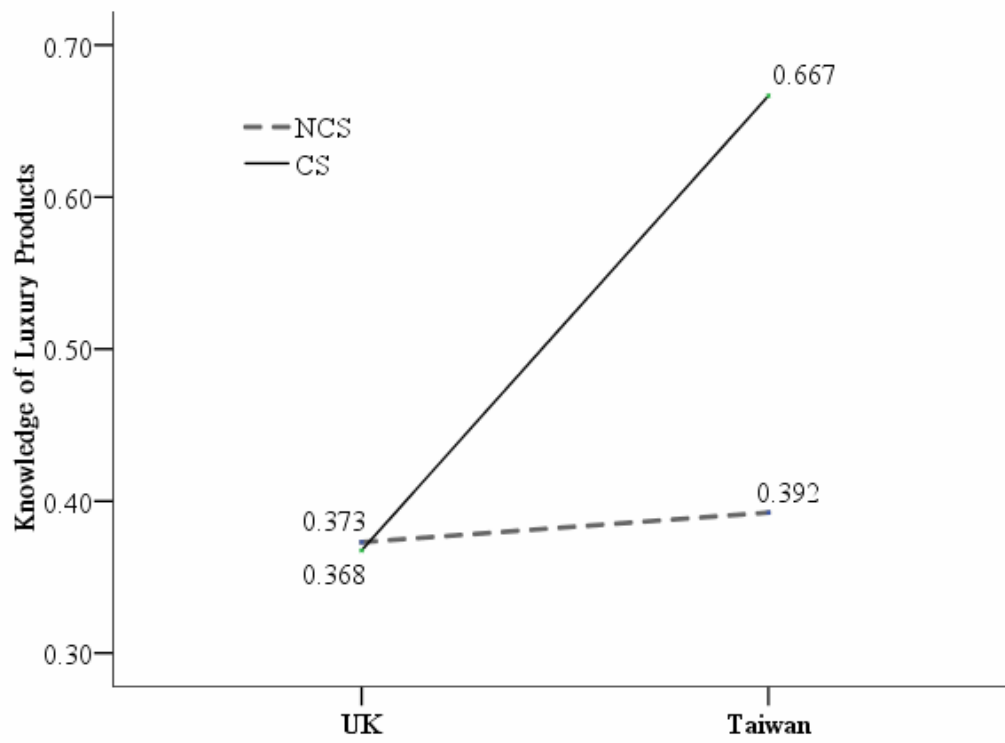
Hi, test Your current score: 0

**Handbag and matching Brand name**

<input type="radio"/>		<input type="radio"/>
CELINE		CHANEL
<input type="radio"/>		GUCCI
COACH		

Next Product

Figure 2



Note. NCS= Normal Shoppers; CS=Shopaholics



Figure 3

**Hi, test**

**Thanks for joining in this experiment.**

**SECTION ONE: JUDGEMENTS**

In this experiment, we want to find out how much information you need to decide to buy something in a catalogue shop (e.g. Argos...etc). For each product, please imagine that you are considering purchasing it from this shop. Is the information of each product below given sufficient or would you need more detail? Please click your answer on each product below:

Louis Vuitton Bag Series				
PRODUCTS		PRICE	DESCRIPTIONS	IS THE INFORMATION GIVEN SUFFICIENT?
 NO.1	Louis Vuitton NAVIGLIO	£ 430	Domier canvas, adjustable chocolate-coloured textile shoulder strap, terracotta-coloured fabric lining	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
 NO.2	Louis Vuitton NOMADE	£ 1700	Nomade leather discretely stamped with the LV initials, honey microfiber lining	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
 NO.3	Louis Vuitton Shoe Bag	£ 885	Tobago leather with a drawstring closure, this supple bag features a removable shoe compartment and is stamped with a blazon inspired by an historic luggage label.	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
NIKE Shoes Series				
PRODUCTS		PRICE	DESCRIPTIONS	IS THE INFORMATION GIVEN SUFFICIENT?
 NO.4	NIKE Shox Turbo +IV SL)	£ 90	Externalised HF welding and synthetic overlays provide a breathable, seamless interior	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
 NO.5	NIKE (Air Obsidian Lightweight Hiking Boots)	£ 80	Lightweight and comfortable like a running shoe with superb support reminiscent of heavier boots.	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
 NO.6	Nike (Air max Florentine Mid)	£ 65	Double-lasted heel with an encapsulated Air-Sole unit, plus a notched eyestay creates added flexibility on those high-kicks and stretch moves	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
CANON Digital Camera Series				
PRODUCTS		PRICE	DESCRIPTIONS	IS THE INFORMATION GIVEN SUFFICIENT?
 NO.7	CANON Digital Camera (Digital IXUS 75)	£ 269	7.1 Megapixels ; 3x optical zoom ; Advanced DIGIC III processor	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
 NO.8	CANON IXUS 65	£ 244	6m pixels; 3 x optical zoom; 4 x digital zoom; 3 LCD colour screen	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
 NO.9	CANON (PowerShot A570 IS)	£ 210	7.1 Megapixels 4x optical zoom with optical Image Stabilizer DIGIC III processor	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
SONY Series				
PRODUCTS		PRICE	DESCRIPTIONS	IS THE INFORMATION GIVEN SUFFICIENT?
 NO.10	SONY HDR-SR1E	£ 850	AVC-HD recording, 30GB Hard Disk, 4m pixel digital camera function, 3.5" touch screen LCD	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
 NO.11	SONY DVP-FX810S Portable DVD	£ 207	8-inch TFT LCD screen, 12 bit / 108 MHz video	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient
 NO.12	SONY VAIO VGN-TX3	£ 1500	Core Solo U1400 80GB HD Windows XP Pro 11.1" TFT - MPN: VGN-TX3XPB	<input type="radio"/> Sufficient <input type="radio"/> Somewhat sufficient <input type="radio"/> Neither sufficient or nor insufficient <input type="radio"/> Somewhat insufficient <input type="radio"/> Insufficient

**CONTINUED**

Figure 4


## 1. Matching up the serial number:

Hi test


**SECTION ONE: JUDGEMENTS**

One product should be only matched one description. Please match up the correct descriptions below:


**Louis Vuitton Bag Series**



NO.1



NO.2




NO.3

Please select the serial number that matches each description:


NO. <input type="text" value="select correct number"/>	NO. <input type="text" value="select correct number"/>	NO. <input type="text" value="select correct number"/>
Double zip around closure with padlock; outer patch pocket; shiny, golden brass pieces.	Two exterior pockets, large interior flat leather pocket; flap may be tucked away for greater storage capacity; zipper closure; golden brass pieces.	Cowhide and synthetic lining; leather protective flap

## 2. Judging correct or incorrect:


**SONY Series**



NO.10



NO.11



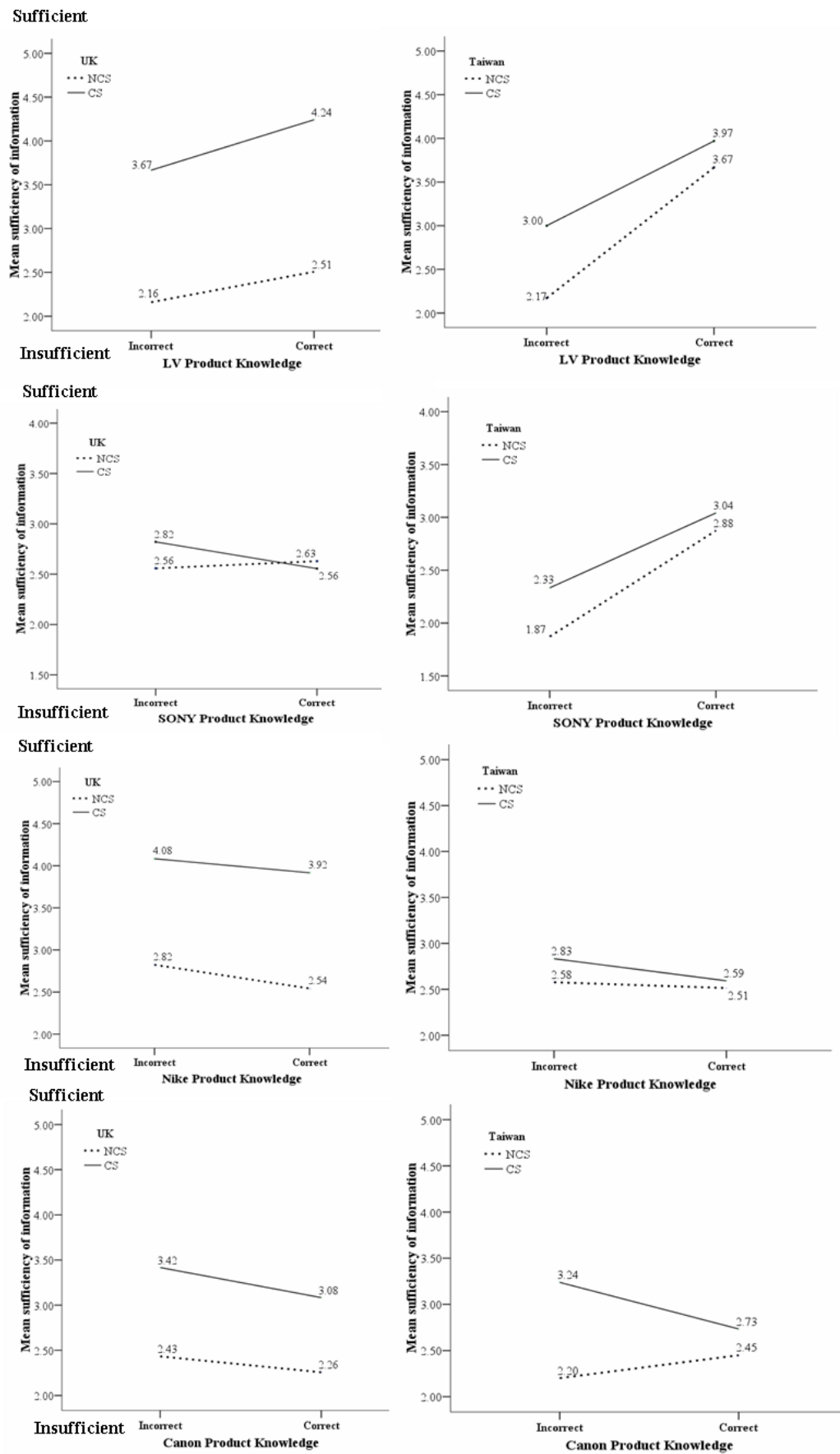
NO.12

Are the descriptions of each product below given correct? Please select your answer:

<input type="radio"/> Correct <input type="radio"/> Incorrect	<input type="radio"/> Correct <input type="radio"/> Incorrect	<input type="radio"/> Correct <input type="radio"/> Incorrect
<ul style="list-style-type: none"> <li>Optical Zoom: 10 x</li> <li>Digital Zoom: 80 x</li> <li>Weight: 460 g</li> <li>Sensor Resolution: 1070 Kpix</li> <li>Effective Sensor Resolution: Still: 1.0 Mpix</li> <li>Shooting Modes: Digital photo mode</li> </ul>	<ul style="list-style-type: none"> <li>Twin headphone jack with volume control</li> <li>Weight: 1.50 kg</li> <li>Lightweight anti-shock design</li> <li>80 kHz/16 bit audio</li> </ul>	<ul style="list-style-type: none"> <li>1.2 GHz</li> <li>Installed Memory: 1 GB (DDR2 DRAM)</li> <li>Hard Drive Rotation Speed: 4,200 RPM</li> <li>CD / DVD Type: Dual Layer DVD±RW</li> </ul>

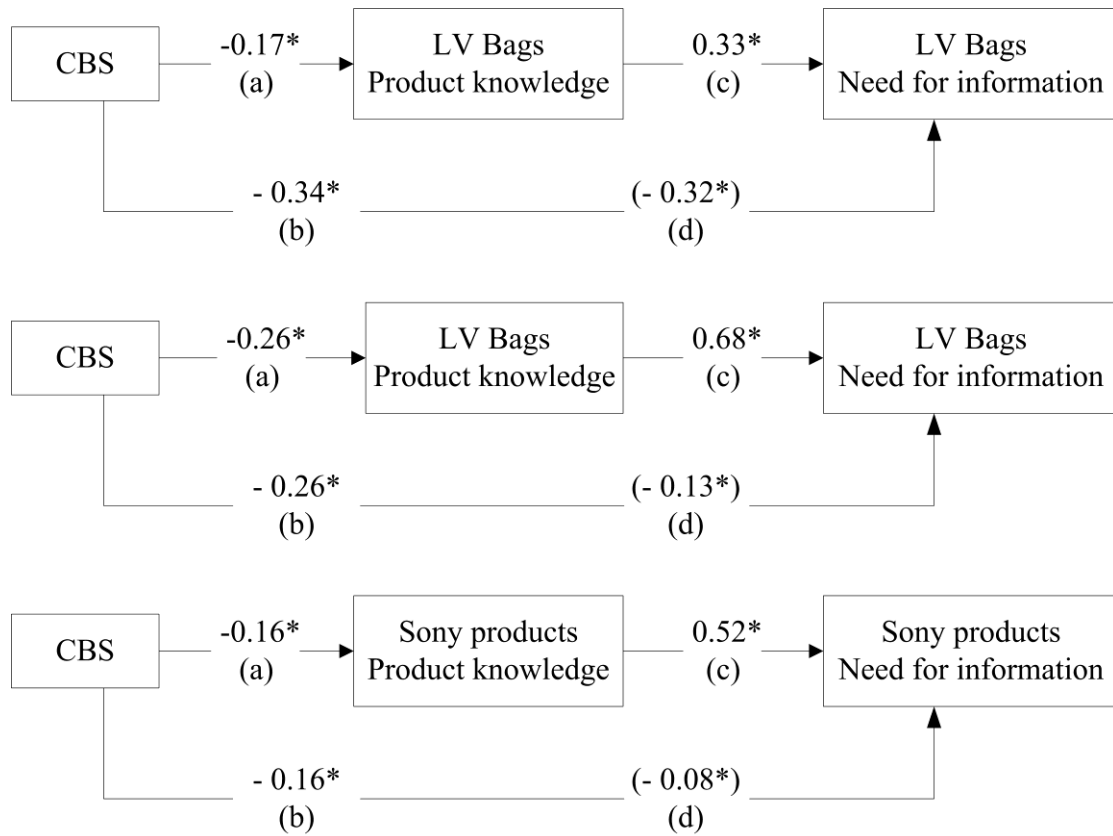
**GO TO SECTION TWO**

Figure 5



Note. NCS: Normal Shopper; CS: Shopaholics

Figure 6



Note.

CBS: Compulsive buying score; Low CBS indicated: high compulsive buying tendency

(a) CBS score predicted product knowledge.

(b) CBS score predicted need for information.

(c) Product knowledge predicted need for information.

(d) The influence of the CBS score on need for information when controlling for the effect of product knowledge.