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The Effect of Consumer Risk Perceptions and Information Search on Willingness to Buy GM Food Products: A Cross Cultural Analysis

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Abstract

This paper seeks to address the widespread call in the literature for the cross-cultural examination (and validation) of accepted concepts within consumer behaviour, such as consumer risk perceptions and information search. The findings of the study provide support for a number of accepted relationships, whilst identifying distinct cross cultural differences in external information search and willingness to buy genetically modified (GM) food products by consumers.

Introduction

To date, much knowledge within consumer behaviour has been derived from the examination of theory and constructs in relation to consumers in North America, primarily the United States. Notwithstanding the importance of this contribution, Doran (2002) notes a general lack of understanding as to whether widely accepted relationships between variables in consumer behaviour describe the behaviour of consumers from other cultures and countries. In fact, the need to validate commonly accepted constructs and relationships in consumer behaviour has been voiced by an increasing number of researchers (see: Patterson and Smith, 2003, Sin, Cheung and Lee, 1999; Mitchell, 1994; Alden, Hoyer and Wechasa, 1989) in areas including consumer risk perceptions (Mitchell, 1994) and information search (Doran, 2002). As such, this study seeks to address this issue by examining the relationship between consumer risk perceptions and information search on willingness to buy GM food products in consumers from Australia and South Korea. Australia is currently the fifth largest producer of GM crops in the world, with agricultural biotechnology endorsed by both federal and state governments (Van Arnum, 2000) and South Korea is one of Australia's largest importers of food based products. As such, it is important to determine how consumers in our food export markets such as South Korea, may react to the introduction of GM foods to their food supply. This is particularly important when markets differ significantly on the basis of for example, culture (e.g., Asian versus Western).

Literature Review

Consumer risk perceptions are widely understood to be a major factor influencing consumer behaviour (Lowe and Corkindale, 1998; Oglethorpe and Monroe, 1994). Defined as "a consumer's subjective feeling that there is some probability that a choice may lead to an undesirable outcome" (Cunningham, 1967, p37), consumer risk perceptions have been shown to include time (Roselius, 1971), financial, performance, physical, psychological and social risk types (Jacoby and Kaplan, 1972), that may act alone or in combination to represent a consumer's overall risk perception. Consumer risk perceptions have been examined across many product and service categories (see: Chaudhuri, 2000; Srinivasan and Ratchford, 1991)

with findings showing that risk dimensions vary widely across different contexts, suggesting that risk is context specific (Rindfleisch and Crockett, 1999).

Given the nature of genetically modified (GM) foods and the increasing publicity received about the potential consequences of their consumption (both positive and negative) there is a growing need to explore purchase and consumption behaviours related to a product that has the potential to impact the lives of so many. As such, one wonders the potential consumer behaviour issues that may arise with the development of such fundamental products as food and their genetic modification and the application of consumer behaviour theory to explore their purchase and consumption.

In terms of research related to consumer risk perceptions, a major stream has focussed on its relationship with information search. From a consumer perspective, information search involves the acquisition of information either internally (using information stored in memory) or externally (seeking information from the environment that has not previously been acquired or is unable to be recalled from the memory) (Schmidt and Spreng, 1996). Overall, findings in the literature suggest that external information search is a risk reducing activity used by consumers across a broad variety of consumer goods such as sunglasses and tampons (Chaudhuri, 2000) and automobiles (Punj and Staelin, 1983). That is, when a consumer perceives greater risk associated with a decision they engage in a greater amount of search for information associated with the object. This is the generally accepted association with most products and as such, it may be expected that information search may also serve to reduce consumer risk perceptions in the context of GM food products.

In terms of food products, it appears that consumer risk perceptions are an important variable that influences consumer behaviour. As noted by Yeung and Morris (2001), issues surrounding GM food products have served to increase consumer perceptions of food related risk. Indeed, perceived risks of GM food products are important for marketers to consider, particularly as consumers may well be the ultimate judges of GM food products (Saba, Rosati and Vassallo (2000). Therefore,

H1: Consumer risk perceptions of GM food products will positively effect external information search on GM food products in consumers from Australia and South Korea.

As consumer risk perceptions have been shown to be a critical determinant of a consumer's willingness to buy a new product (Shimp and Bearden, 1982), it appears likely that consumer risk perceptions of GM food products may also be related to willingness to buy (WTB) GM food products. Therefore,

H2: Consumer risk perceptions will negatively effect willingness to buy GM food products in consumers from Australia and South Korea.

Similarly, it may also be expected that external information search, as a risk reducing activity, may be related to consumer willingness to buy. Therefore,

H3: External information search will positively effect willingness to buy GM food products in consumers from Australia and South Korea.

While the examination of consumer risk perceptions has received much attention in the extant literature, there has been relatively little attention given to the possible impact of culture on consumer risk perceptions. Of the small body of literature that has examined risk perceptions cross culturally, culture has been valuable in explaining some differences in consumer risk perceptions for products such as meat (Pennings, Wansink and Meulenberg, 2002) and toothpaste (Verhage, Yavas and Green 1990). In this light, it would appear that there may be differences in the risk consumers from different countries see in GM food products. Therefore,

H4: Consumer risk perceptions of GM food products will significantly differ between consumers from Australia and South Korea.

So too, it is expected that willingness to buy GM food products will differ in consumers from different countries. Therefore,

H5: Willingness to buy GM food products will significantly differ between consumers from Australia and South Korea.

Just as culture has been shown to explain differences consumer risk perceptions, research suggests that culture may also explain differences in information search. While most studies have examined information search from a uni-cultural perspective, a small stream of research has studied information search cross-culturally. For example, in the context of televisions, Doran (2002) found distinct differences between Chinese and North American consumers' in terms of their information search activities. As such, it would appear that external information search on GM food products may also differ between consumers from different countries. Thus,

H6: External information search on GM food products will significantly differ between consumers from Australia and South Korea.

Research Design

A questionnaire was used to measure consumer risk perceptions, external information search and willingness to buy GM foods. All items were anchored by a 7-point Likert scale, which is a familiar response category format for Australians, as previously used by O'Cass (2004) and South Korean consumers, as advocated by Lee and Green (1991) and Kim and Jin (2002). Scale response wording ranged from *Strongly Disagree* to *Strongly Agree* and was chosen due to usage in similar food related consumer behaviour studies (see: Subrahmanyam and Cheng, 2000; Bredahl, 2001). Further, similar wording has been found in the extant literature on Korean consumers (see: Hafstrom, Chae and Chung, 1992; Kim and Jin, 2001). The questionnaire was back translated from English to Korean to English by accredited translators, as recommended by Sin, Cheung and Lee (1999). A convenience sample was administered via a mall intercept in a large city in both Australia and Korea. Two research assistants approached potential respondents to invite participation in each case. In the Korean data collection, the research assistants were native Koreans.

The data collection process resulted in a total of 412 useable questionnaires (201 Australian and 211 Korean). Issues of measurement equivalence and sample equivalence were addressed at this stage. The *Consumer Risk Perceptions of GM Food Products Scale* was developed via

two focus groups, one Australian and one Korean group. The six dimensions used to measure risk perceptions were adopted from Roselius (1971) and Jacoby and Kaplan (1972). The 15 item scale included *My purchase of GM food products may be questioned by some people whose opinions I value*. The *External Information Search for GM Food Products Scale* was adopted from Chaudhuri (2000). The four item scale included *I would ask the opinion of others about GM food products*. The four item *Willingness to Buy GM Food Products Scale* was adopted from Klein, Ettenson and Morris (1998) and included *I would never buy GM food products*.

Results

Initially, the data underwent preliminary analysis to address issues of sample equivalence and to assess psychometric properties and internal consistency of the scales. Regression analysis was run on the data to test the first three hypotheses and the results are shown in Table 1. As expected, H1 was supported, showing that consumer risk perceptions negatively effect willingness to buy in consumers from Australia and South Korea. As shown in Table 1, H2 was also supported, with the results showing that consumer risk perceptions negatively effect willingness to buy GM food products in both Australian and Korean consumers. Also as shown in Table 1, the results do not support H3, showing that information search negatively effects willingness to buy GM food products for both Australian and Korean consumers, although the relationship was not significant in the case of the Korean consumers.

Table 1: Results of Regression Analysis (H1-H3): Australian and Korean Samples

H	Dependent Variable	Independent Variable	Beta		T-Value		Sig.	
			Aust.	Korea	Aust.	Korea	Aust.	Korea
1	Info Search	Risk Perceptions	.450	.270	7.11	4.06	.001	.001
2	WTB	Risk Perceptions	-.616	-.295	-11.05	-11.73	.001	.001
3	WTB	Info Search	-.290	-.070	-4.27	-1.02	.001	ns

To test the remaining three hypotheses, independent t-tests were conducted. As expected, H4 was supported, with the results showing there is a significant difference in the risk consumers from Australia and Korea see in GM foods (t-value -2.32, .05). Also, H5 and H6 were supported, showing a significant difference in external information search for Australian and Korean consumers (t-value 3.09, .005) and a significant difference in consumer willingness to buy GM food products for Australian and Korean consumers (t-value 4.23, .001).

Discussion and Conclusions

This study provides some interesting insights into the cross cultural examination of some commonly accepted concepts within consumer behaviour. For instance, the results of this study empirically support the relatively “culture bound” understanding that consumer risk perceptions are antecedent to both external information search and willingness to buy, in consumers outside North America. However, cross cultural differences were found in the relationship between information search and willingness to buy, supporting earlier work by

Doran (2002) who found differences in information search for American and Chinese consumers.

Interestingly however, the relationship indicates information search negatively effects willingness to buy. From a marketing management viewpoint, this is important as it appears that GM food information, rather than easing the mind of the consumer, is in fact decreasing the likelihood of willingness to purchase across both countries. This suggests major changes are needed in consumer information campaigns developed by GM food marketers. Finally, significant differences were found in consumer willingness to buy GM food products, with Korean consumers being less willing to buy GM food products, implying that exporters of non-GM produce to South Korea may gain a substantial competitive edge over GM food competitors by emphasising the non-GM nature of the product.

Whilst the findings of this study are important they are couched in the context of identified limitations. First, this study examined theoretical concepts in only two countries. Future research is needed to further examine these variables on distinctly different cultures to those found in North America (Doran, 2002), to aid in our understanding of consumer behaviour outside the US. Also, the use of convenience sampling in the study means that caution should be taken when projecting the results to the broader population. Despite this limitation we can take solace in the views of Broderick and Mueller (1999) who argue that non-probability procedures are often as efficient as probability sampling in cross-cultural research.

Areas for future research may include examination of different individual food categories to illicit any cross cultural differences in consumer risk perceptions. In conclusion, while this study adds cross cultural validity to some commonly accepted relationships and constructs, distinct differences in the consumer risk perceptions, willingness to buy and external information search across consumers from Australia and South Korea, suggests that the call in the literature for the cross cultural validation of accepted concepts and theory in consumer behaviour needs to be heeded. This is particularly so in the context of making consumer behaviour theory more relevant, and how much more relevant a topic that the study of a product that is creating such a fuss as GM foods. By exploring theory in a cross cultural context of such a product as GM food we can advance our understanding of not only the theory, but its practical application and usefulness.

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