

# Explaining Actual Online Shopping Behaviour: A Cross-Cultural Study

Felix B. Tan<sup>a</sup>, Liang Yan<sup>b</sup>, Cathy Urquhart<sup>c</sup>

<sup>a</sup> [felix.tan@aut.ac.nz](mailto:felix.tan@aut.ac.nz), AUT University

<sup>b</sup> [liangyan@world-net.co.nz](mailto:liangyan@world-net.co.nz), The University of Auckland

<sup>c</sup> [c.urquhart@auckland.ac.nz](mailto:c.urquhart@auckland.ac.nz), The University of Auckland

## Abstract

Currently, there are an estimated 1.076 billion worldwide Internet users (World Internet Stats, 2006) and more than half of them have purchased a product or service online (Gray, 2005). With the increasing population of online purchasers, online stores who sell goods and services via a website will benefit from sound conceptual and empirical research (Hoffman, Kalsbeek, & Novak, 1996). An enhanced understanding of online shopping behaviour (OSB) can help online stores to market and sell products or services more easily and effectively (Heijden, Verhagen, & Creemers, 2003).

In recent years, several researchers have tried to investigate online consumer's shopping behavior by exploring specific area of Internet shopping. For example, Jaillet (2002) examined online shoppers' information search behavior. Some have studied the predictors of online purchasing behavior (Foucault & Scheufele, 2002). Others examined the non-functional motives which drive online shoppers to shop. For example, Goldsmith and Goldsmith (2002) found that online apparel buyers have more online shopping experiences. As a voluntary individual behavior, online shopping can be studied based on different technologies or behavior related models and theories: Flow theory, Technology Acceptance Model, Web Behavior Model, Innovation Diffusion Theory, and Theory of Planned Behavior (TPB). Although these models have helped us understand what motivates consumers to shop online, the effects of cultural differences on OSB remains unclear.

There are few studies that have examined the differences associated with intention to shop online across cultures. For example, Pavlou and Chai (2002) incorporated some of Hofstede's (2001) cultural dimensions and argued that the cultural differences influenced the intention of adopting e-commerce across countries. However, they did not examine actual e-commerce use. Moreover, they argued and found that the relationship between attitude and intention to transact is stronger in collectivist than in individualist societies. This is inconsistent with findings of other research (Lee, 2000; Kacen and Lee, 2002) which found a weaker relationship between attitude and intention in collectivist than in individualist cultures. To date, culture related studies in the context of OSB remains scarce with inconsistent findings and a focus on intention to transact. The present study therefore seeks clarification by examining the cultural effects on actual online shopping behaviour and associated predictors using the Theory of Planned Behaviour (TPB).

TPB (Ajzen, 1991) includes three core constructs: Attitude toward behavior, Subjective norms, and Perceived behavioral control. A lot of research in the Information Systems (IS) field has used TPB as the theoretical basis. Some of them use TPB as the research model without any modification (Chau & Hu, 2001; Venkatesh & Brown, 2001). Some integrate TPB with constructs from other theories or models (Limayem et al., 2000; Venkatesh, Morris, Davis, & Davis, 2003; Taylor & Todd, 1995). Others examine the role of moderators in TPB (Venkatesh et al., 2003; Morris & Venkatesh, 2000; Pavlou & Chai, 2002). This has proved the appropriateness of TPB in the field of Information Systems. However, Hofstede (2001) argued, “marketing theory mainly originated in the United States, and therefore it has been based on U.S.-centered assumption about consumer motivation” (p. 449). The effects of national culture may influence the validity of these theories. A review of the literature in the context of OSB suggests that TPB has been tested primarily in U.S. It needs to be tested in other countries or cultures to prove its appropriateness. In this study, TPB is tested in both New Zealand and China in the context of OSB to prove its appropriateness in different cultures.

This study used the cultural taxonomy developed by Hofstede (2001) as it is the most commonly used model in IS research into cross cultural issues (Myers & Tan, 2002). Hofstede (2001) offers a model of national culture with five dimensions: individualism/collectivism, masculinity/femininity, power distance, uncertainty avoidance, and time orientation. Three dimensions are relevant to this study: individualism/collectivism, power distance, and time orientation. This study compared China and New Zealand. China has the highest rank for Long-term Orientation (114), while New Zealand has a relatively low rank (30). With a low score for Long-term Orientation, New Zealanders are ready to take rapid change without long-term commitments. The Chinese score for Individualism (15) is much lower than New Zealand's (79). This may attribute to the collectivist nature of Chinese society where everyone takes responsibility for other members of their group. China has significantly higher Power Distance index score of 80 compared to New Zealand's 22, which indicates the existence of a high level of inequality of power and wealth in the society (Hofstede, 2001). The research model is presented in Figure 1.

We conducted an Internet self-administered survey of online shoppers in both NZ and China to validate our research model. This method used a “URL-embedded message in the text of the e-mail so that the participant is directed to click on the hypertext link. This then evokes his or her Web browser, presenting the participant with a Web-based survey (Simsek & Veiga, 2001, p. 219). Snowball sampling technique was used where respondents were asked to help identify others they know who are online shoppers (Berg, 1988). This permitted the identification of respondents who have actually shopped online. 129 responses were received from New Zealand, and 133 from China. To ensure measurement reliability, items validated in previous research have been used. The measures for constructs are mainly adapted from Taylor and Todd (1995) with small wording modification. Data from the questionnaire are analyzed with Partial Least Squares (PLS) procedure (Wold, 1989), using the technique of PLS-Graph v. 3.00 (Chin, 2001). PLS is a well-established technique for estimating path coefficients in structural models and has been widely used in various research studies (Limayem, Hirt, & Chin, 2001; Pavlou & Chai, 2002). The reason of employing this method is because it demands relatively small sample size.

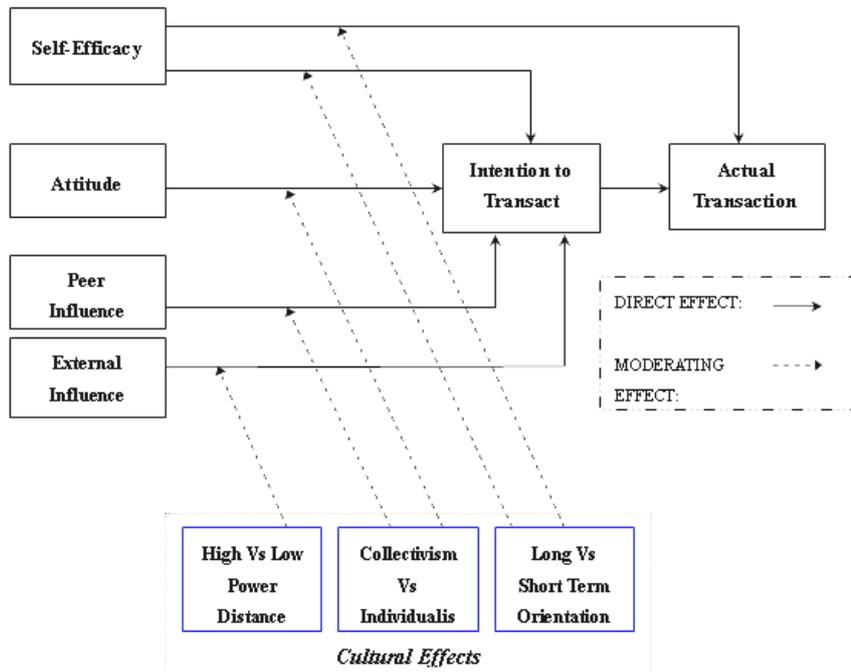


Figure 1: Research Model

The sample sizes (129 and 133) satisfied the requirement of PLS. The results are interpreted in two stages: 1) the measurement model and 2) the structural model. Finally, the method of multi-group comparison is used to examine the cultural effect. Several tests demonstrated that the measurement model is valid and reliable, including confirmatory factor analysis, internal composite reliability, convergent and discriminant reliabilities. In terms of structural model, our approach was to demonstrate strong loadings, high R-squares, and significant structural paths (Chin 1988). As shown in Figure 2, the results for both countries well support the role of the TPB in explaining online shopping behavior.

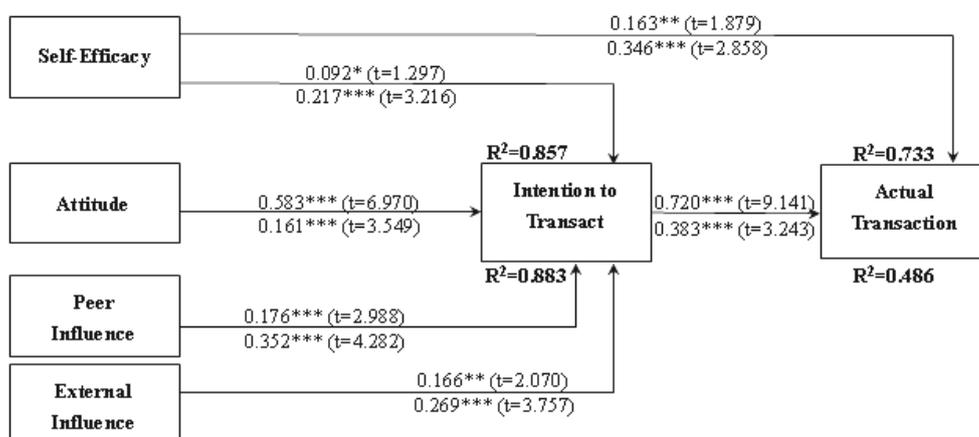


Figure 2: Result of PLS Analysis (Top Coefficient: NZ; Bottom Coefficient: China)

\* p<0.1; \*\* p<0.05; \*\*\* p<0.01

It shows that all of the path coefficients are significant at the level of  $p < 0.01$  except two proposed relationships which are significant at the level of  $p < 0.05$  – thereby supporting all proposed relationships in the model.

To examine cultural differences at structural level across the culture groups, the difference of path coefficients between two cultures needs to be tested to see if they are significantly different across cultures. In this study multi-group comparison recommended by Chin (2000) is used. The calculated t-statistics of differences in path coefficients between two cultures were all significant at the level of 0.01 (Table 1).

<b>Relationships</b>	<b>t-statistics</b>	<b>Assessment</b>
Attitude-Intention	<b>50.465*</b>	<b>Supported</b>
Peer Influence-Intention	<b>19.987*</b>	<b>Supported</b>
External Influence-Intention	<b>10.943*</b>	<b>Supported</b>
Self-Efficacy – Actual Transaction	<b>14.087*</b>	<b>Supported</b>
Self-Efficacy – Intention	<b>14.438*</b>	<b>Supported</b>
Intention-Actual Transaction	<b>27.239*</b>	

*Table 1: t-statistics of differences in path coefficients (note: \*  $p < 0.01$ )*

However, the difference in path coefficients of intention - actual transaction is also significant at the level of 0.01, which is unexpected. The same result was found in Chan and Lau's (2001) study who suggest the existence of some situational hindrance that discourages the effective translation of online purchasing intention to actual behaviour in China - e.g. limited Internet access, a less than secure online environment.

To our best knowledge, there is no study in the context of OSB that has examined the cultural effects on the impact of peer influence and external influence on online consumer's intention to transact. The significant finding indicates that the positive relationship between peer influence and intention to transact is stronger in collectivist cultures than in individualist cultures. This may well indicate that for Web retailers targeting online consumers in collectivist cultures, they need to find a way to use existing customers' positive experiences to motivate other's intention to transact online. To take advantage of the influence from family, friends, and colleagues, Web retailers could feature relevant reference group in their advertisements. Moreover, the positive relationship between external influence and intention to transact is found to be stronger among people from high power distance cultures compared to people from low power distance cultures. For this reason, Web retailers targeting countries with high power distance could use mass media, popular press, and news report to promote a positive image of online shopping to encourage the purchasing behaviour.

Furthermore, the positive relationship between attitude and intention to transact is stronger in individualist cultures than in collectivist cultures. This finding is consistent with studies by Chan and Lau (2001), Bagozzi (2000), Lee (2000), and Kacen and Lee (2002) in other research fields. As discussed earlier, the only study examining cultural effects in the context of OSB (Pavlou & Chai, 2002) hypothesised that the relationship between attitude and intention is stronger in collectivist cultures than in individualist cultures. This is conflicting with the other studies. This study has cleared up this disagreement by proving that the finding

is consistent with most studies. Therefore, Web retailers targeting individualist cultures should encourage online consumer's favourable attitude. Indicators that were used to measure attitude may provide some useful hints. For instance, since New Zealand online consumers' attitude toward online shopping is strongly affected by attitudinal beliefs such as "online shopping is a good idea" and "it is appealing", Web retailers should detail clearly how the experiences of buying online could be good and appealing, and exactly what benefits or values these products or services deliver to the consumers.

This study confirms the relationship between self-efficacy and actual transaction is stronger among people from long-term oriented cultures compared to people from short-term oriented cultures. These findings indicate that people from long-term oriented cultures require more behavioural control (self-efficacy) when they are intending to or actually purchasing online. Therefore, Web retailers targeting long-term oriented cultures should encourage people's intended or actual transaction by improving their personal ability to purchase products or services online – eg. providing free training or encouraging free trial on some e-commerce services.

In conclusion, this study enhances our understanding of the drivers of OSB in a cross-cultural context. Factors that drive online consumer shopping behaviour in different cultures are confirmed in this study. However, it was found that approximately 52% of the variance in actual transaction remains unexplained when applying the model in China. Future research should incorporate additional antecedent factors beyond intention and self-efficacy to study the actual transaction.

References are available on request.