Explaining actual online shopping behavior: evidences from two distinct national cultures

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Abstract

With increased population of online shoppers, research into online shopping behavior is starting to emerge. Much of the literature has used the technology acceptance model, innovation diffusion theory and the theory of planned behavior to study this phenomenon. This has shed light on the behavior of consumers when they shop online. However, prior research has placed little emphasis on cultural differences in online shopping. Despite wide acknowledgements that the online environment is characterized by a high level of uncertainty and an increasing number of international customers, there are only a few studies that describe how cultural differences may impact on the online shopping behavior of consumers. These have focused on intention to transact and not actual purchasing behaviour. The aim of this paper is to extend prior research by integrating national culture into the theory of planned behavior to better understand actual online shopping behaviour across two cultures. National culture dimensions of long-/short-term orientation and individualism/collectivism are found to have significant effects on both intended and actual behaviours.

Keywords: *online shopping behavior, actual transaction, national culture, theory of planned behavior, individualism, collectivism, time orientation*

Introduction

Currently, there are an estimated 605.60 million worldwide Internet users, and nearly two-thirds of them have purchased a product or service online (Ipsos, 2003). Most online shoppers are rather satisfied with their online experiences and about half of them will increase their online shopping activity (Morawski, 2001). With the increased population of online purchasers, online stores who sell goods and services via a website will benefit from sound conceptual and empirical research. An enhanced understanding of online shopping behavior (OSB) can help online stores to market and sell products or services more easily and effectively (Heijden, Verhagen, & Creemers, 2003).

Online shopping behavior has been studied using different models or theories, such as technology acceptance model, innovation diffusion theory, theory of planned behavior, and

decomposed theory of planned behavior. These models have helped online stores understand how and why consumers shop online. However, the influence of cultural differences on OSB is still unclear. This paper therefore aims to develop and test a comprehensive theoretical framework to better understand the effect of culture on OSB. The basis of this framework is the theory of planned behavior.

Cultural effect cannot be neglected with the globalisation of e-commerce (Amant, 2002). However, the original theory of planned behavior does not incorporate cultural effect in the model. Researchers and practitioners need to consider the effect of culture since online shoppers can potentially come from more than one culture. Winer (1998) has called for research on the interaction of culture and OSB. Currently, there are only few studies (Kacen & Lee, 2002; Pavlou & Chai, 2002) which include national culture as moderators in the context of OSB. However findings are conflicting. This study attempts to seek clarification by proposing the moderating effect of two dimensions of national culture - individualism/collectivism and time orientation (Hofstede, 2001) - on the relationships between key constructs of the model. It is able to provide a comprehensive examination of the cultural effect on actual (and not just intended) online shopping behavior.

Online Shopping Behavior

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 three 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 behavior and

associated predictors using the Theory of Planned Behavior.

Theory of Planned Behavior (TPB)

TPB (Ajzen, 1991) includes three core constructs: Attitude toward behavior, Subjective norms, and Perceived behavioral control. The definitions of the core constructs are shown in Table 1.

Core Constructs	*Definitions*
Attitude Toward Behavior	**An individual's favorable or unfavorable evaluation of an attitude object**
Subjective Norms	**According to Fishbein & Ajzen (1975), subjective norm is the result of one's Normative Beliefs, which indicates "one's perception that most people who are important to him think he should or should not perform the behavior in question" (p. 95).**
Perceived Behavioral Control	**It is the one's perception of the presence or absence of required resources and opportunities to perform a behavior**

Table 1. Core Constructs of TPB (Fishbein & Ajzen, 1975; Ajzen & Fishbein 1980)

A lot of research in the Information Systems 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 online shopping behavior 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.

National Culture

To separate the character of a society from other forms of culture (e.g. corporate culture), we use the word "national culture". 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. The two dimensions in which New Zealand and China differs most are examined in this study: individualism/collectivism and time orientation. Individualism/collectivism describe the relationship between the "individual and the collectivity that prevails in a given society" (Hofstede, 2001, p. 209). Individualism is a social pattern in which individuals see themselves as autonomous and independent, however, individuals from collectivist cultures see themselves as an integral part of one or more collectives or in-groups (Triandis, 1994). Time orientation "opposes long-term to short-term aspects of Confucian thinking: persistence and thrift to personal stability and respect for tradition" (Hofstede, 2001, p. 351).

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.

Theoretical Framework and Hypotheses

The research model is presented in Figure 1.

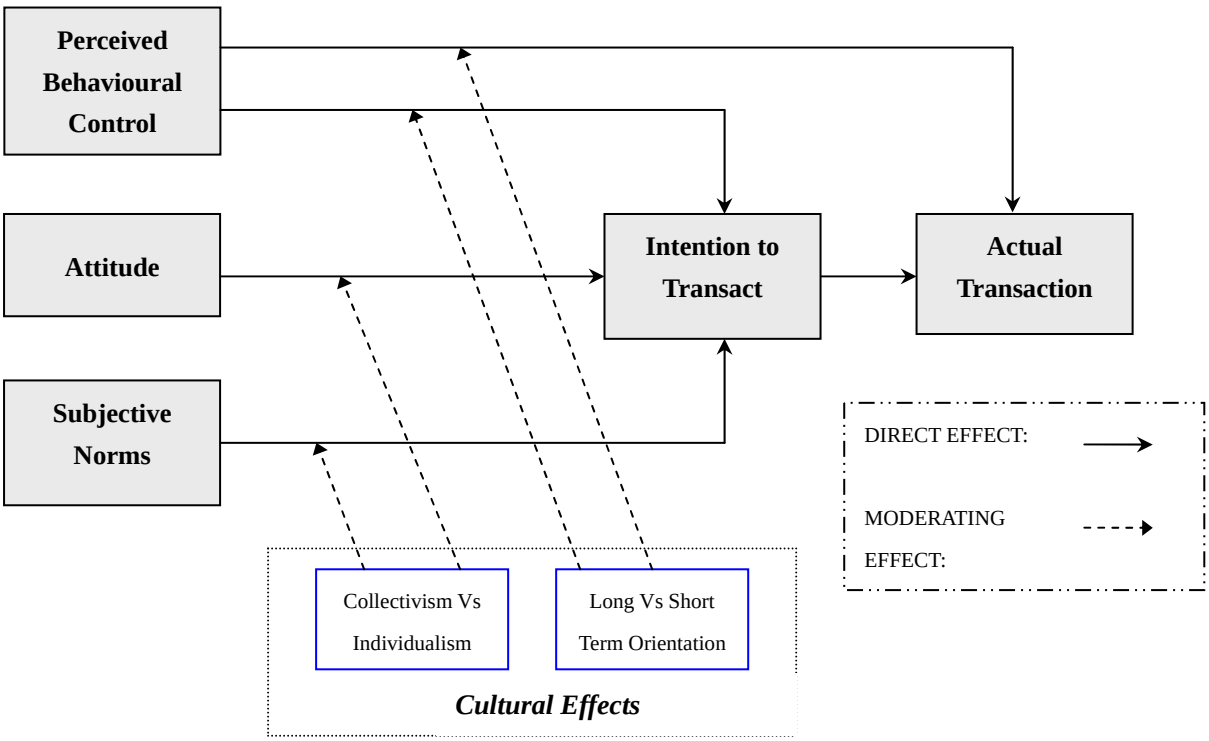

Figure 1. Research Model

Perceived Behavioural Control

Thist has been decomposed into self-efficacy (self-confidence in one's ability) and

facilitating conditions (availability of resources to engage in a behavior) (Triandis, 1994). This study focuses on self-efficacy in order to better understand the concept of control in B2C e-commerce context. Hence, perceived behavioral control is defined here as the "consumer perception of control over a potential transaction, drawn from facilitating conditions that render such control" (Pavlou & Chai, 2002, p. 241). Perceived behavior control has positive direct effect on both the intention to transact and actual transaction (Ajzen, 1991).

H1a: Perceived behavioural control has significant positive influence on intention to transact in New Zealand and China.
H1b: Perceived behavioural control has significant positive influence on actual transaction in New Zealand and China.

Long-term orientation, with its roots in the ethical imperatives of Confucius, relates to a society's search for Virtue (Hofstede, 2001, p. 363). China is extremely high on long-term orientation and "Chinese speakers are more likely to express full confidence (yes or no), and they use fewer probability terms such as possible and maybe" (Hofstede, 2001, p. 362). This confirms that Chinese people demand more control over their behavior, which has been confirmed by studies of Pavlou and Chai (2002) and Chan and Lau (2001). In this study, the relationships between perceived behavioral control and intention to transact/actual transaction are proposed to be stronger in a society with long-term orientation than a society with short-term orientation.

H2a: The positive relationship between perceived behavioral control and actual transaction is stronger in long-term oriented cultures than in short-term oriented cultures.
H2b: The positive relationship between perceived behavioral control and intention to transact is stronger in long-term oriented cultures than in short-term oriented cultures.

Attitude

In the context of e-commerce, attitude is the "overall evaluation of desirability of a potential transaction with a specific Web retailer" (Pavlou & Chai, 2002, p. 241). Attitude is supposed to positively influence the intention to transact (Ajzen, 1991).

H1c: Attitude has significant positive influence on intention to transact in New Zealand and China.

People in Individualist cultures are motivated by their own preferences, needs and rights; priority is given to their own goals. On the other hand, people in Collectivist cultures focus on group preference and group harmony (Triandis, 1994). Consequently, the relationship between attitude and intention has been found to be weaker in collectivist than individualist cultures (Lee, 2000; Kacen & Lee, 2002). Therefore, in this study the relationship between

attitude and intention to transact is proposed to be weaker in collectivist (Chinese) than in individualist (New Zealand) cultures.

H2c: The positive relationship between attitude and intention to transact is stronger in individualist cultures than in collectivist cultures.

Subjective Norms

Subjective norm has been found to have a direct positive influence on the intentions of consumers to engage in online shopping. It includes peer influence and external influence in which peer influence is "adhering to opinions from family, friends, and peers" and external influence is "adhering to the larger societal fashion" (Pavlou & Chai, 2002, p. 244).

> *H1d: Subjective norm has significant positive influence on intention to transact in New Zealand and China.*

Individuals in collectivist societies tend to be more willing to attach heavier weight to major referents' views within their social circles (Lee & Green, 1991). In contract, people in individualist societies rather than relying on others' views rely more on self-confidence, self-reliance and self-interest (Markus & Kitayama, 1998). As a result, people from collectivist cultures should be more easily influenced by family, friends, mass medium, and popular press than those from individualist cultures. The relationship between subjective norms and intention to transact is proposed to be stronger in collectivist (Chinese) than in individualist (New Zealand) cultures. This has been proved by Chan and Lau's (2001) empirical study on explaining green purchase behavior conducted in China and The United States.

> *H2d: The positive relationship between subjective norms and intention to transact is stronger in collectivist cultures than in individualist cultures.*

Intention to Transact

Intention to transact online is the consumer's objective to engage in an electronic exchange relationship with Web retailers. Consumers' intention to transact in e-commerce can be seen as the behavioral intention to engage in online shopping (Pavlou & Chai, 2002). It is believed that intention to transact has a positive influence on actual transaction in both countries.

> *H1e: Intention to transact has significant positive influence on actual transaction in New Zealand and China.*

Methodology

We conducted an Internet self-administered survey with online shoppers in both NZ and

China to validate our research model. This method uses 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. The demographic characteristics of the two samples are shown in Table 2.

Variables		NZ	China
Gender	**Male**	57.4%	60.2%
	Female	42.6%	39.8%
Age	**< 20**	3.1%	2.3%
	20-29	38.0%	67.7%
	30-39	36.4%	18.0%
	40-49	14.7%	7.5%
	50-59	6.2%	3.8%
	> 60	1.6%	0.8%
Education	**Elementary School**	10.9%	4.5%
	High School	31.8%	22.6%
	Bachelor	48.1%	51.1%
	Master	7.8%	21.1%
	Ph.D.	1.6%	0.8%
Personal Annual Income NZ$ (RMB)	**< 36,000 (< 15,000)**	17.1%	57.1%
	36,001-50,000 (15,001-30,000)	38.0%	27.1%
	50,001-70,000 (30,001-50,000)	32.6%	9.8%
	70,001-90,000 (50,001-70,000)	10.9%	3.0%
	> 90,000 (> 70,001)	1.6%	3.0%

Table 2. Demographic Information (numbers in brackets are personal income in China)

The questionnaire has been originally designed in English, and then been translated into Chinese. The back translation method was used where the Chinese version was translated back to English by another bilingual person (Cavana et al., 2001). To answer the questions respondents are asked to state a specific e-commerce site they have recently used to make a purchase. This ensures that the respondents answer the questions with a specific e-commerce site in mind thereby enabling greater accuracy in answering.

The questionnaire contains a seven-point Likert scale with anchors ranging from 'strongly agree' to 'strongly disagree' to examine how strongly respondents agree or disagree with the statements. 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. Two academics and ten respondents pre-tested the questionnaire. Some measurement and wording problems were identified and corrected before administering the questionnaire online.

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.

Results

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.

Measurement Model: From an initial confirmatory factor analysis, individual item loadings for all latent variables are acceptable since individual item loadings on their respective latent variables are all greater than the recommended minimum level of 0.60 (Chin, 1998) with a minimum of 0.745. (Table 3)

Indicators	Loadings (NZ)	Loading (China)	T-statistics (NZ)	T-statistics (China)
A1	0.906	**0.878**	43.160	**31.079**
A2	0.884	**0.866**	42.510	**30.162**
A3	0.892	**0.882**	43.443	**45.281**
SN1	0.849	**0.932**	28.888	**90.294**
SN2	0.816	**0.912**	20.382	**49.419**
SN3	0.817	**0.897**	21.718	**49.748**
I1	0.948	**0.904**	93.873	**41.229**
I2	0.938	**0.881**	86.963	**40.331**
I3	0.940	**0.899**	82.646	**50.214**
PBC1	0.865	**0.812**	30.947	**24.771**
PBC2	0.913	**0.745**	52.330	**12.616**
PBC3	0.872	**0.925**	31.305	**96.846**

Table 3. Loadings of Indicators

Internal Composite Reliability (ICR) is used to assess the internal consistency for a given block of indicators. Each Internal Composite Reliability (ICR) is greater than 0.70 (Gallivan, 2001) for each latent variable (Table 5). This indicates that the reliability of all the constructs is adequate when applying the data collected in both NZ and China.

The convergent validity of the measures associated with each construct is examined with average variance extracted and loadings and cross loadings of indicators. Average Variance Extracted (AVE), created by Fornell and Larcker (1981), attempts to measure the amount of variance that a latent variable component captures from its indicators relative to the amount due to measurement error (Chin, 1998). Table 4 reports that AVEs are all greater than the

recommended minimum value of 0.50, which demonstrates valid measurement of the latent variables. Another test of convergent validity can be obtained by calculating the correlations between latent variable component scores and other indicators besides its own block. Results presented in Table 4 show that this requirement is met because that each indicator loads higher on its measured latent variable rather than others.

Indicators	Attitude NZ (China)	Subjective Norms NZ (China)	Intention to Transact NZ (China)	Perceived Behavioral Control NZ (China)	Actual Transaction NZ (China)
AVE	**0.799 (0.766)**	**0.685 (0.895)**	**0.887 (0.800)**	**0.781 (0.716)**	**1.0 (1.0)**
A1 *A2* *A3*	0.906 (0.878) 0.884 (0.866) 0.892 (0.862)	0.725 (0.569) 0.673 (0.674) 0.662 (0.656)	0.802 (0.605) 0.765 (0.646) 0.825 (0.718)	0.748 (0.544) 0.702 (0.607) 0.659 (0.555)	0.639 (0.605) 0.608 (0.580) 0.663 (0.555)
SN1 *SN2* *SN3*	0.634 (0.719) 0.644 (0.659) 0.628 (0.609)	0.849 (0.932) 0.816 (0.912) 0.817 (0.897)	0.666 (0.802) 0.657 (0.770) 0.632 (0.768)	0.630 (0.794) 0.609 (0.733) 0.642 (0.760)	0.609 (0.576) 0.584 (0.527) 0.570 (0.573)
I1 *I2* *I3*	0.856 (0.690) 0.838 (0.619) 0.849 (0.711)	0.728 (0.743) 0.760 (0.770) 0.738 (0.778)	0.948 (0.904) 0.938 (0.880) 0.940 (0.899)	0.769 (0.727) 0.756 (0.715) 0.721 (0.771)	0.800 (0.564) 0.821 (0.579) 0.782 (0.651)
PBC1 *PBC2* *PBC3*	0.693 (0.465) 0.708 (0.419) 0.682 (0.719)	0.702 (0.647) 0.683 (0.643) 0.622 (0.808)	0.706 (0.657) 0.745 (0.615) 0.673 (0.802)	0.865 (0.812) 0.913 (0.795) 0.872 (0.925)	0.640 (0.532) 0.668 (0.415) 0.634 (0.695)
AT1	0.713 (0.662)	0.710 (0.612)	0.851 (0.669)	0.740 (0.662)	1.000 (1.000)

Table 4. AVEs, Factor Loadings and Cross Loadings

The square root of AVE is used to test the discriminant validity. Fornell and Larcker (1981) suggest that the square root of AVE should be greater than the corresponding correlations among the latent variables. The results shown in Table 5 demonstrate the discriminant validity.

	ICR NZ (China)	**Attitude** NZ (China)	**Perceived Behavioral Control** NZ (China)	**Subjective Norms** NZ (China)	**Intention to Transact** NZ (China)	**Actual Transaction** NZ (China)
A	**0.923 (0.907)**	**0.894 (0.875)**				
PBC	**0.914 (0.883)**	0.786 (0.650)	**0.884 (0.846)**			
SN	**0.867 (0.938)**	0.768 (0.726)	0.757 (0.834)	**0.828 (0.914)**		
I	**0.959 (0.923)**	0.900 (0.754)	0.802 (0.825)	0.788 (0.854)	**0.942 (0.894)**	
AT	**1.000 (1.000)**	0.713 (0.661)	0.740 (0.662)	0.710 (0.612)	0.851 (0.669)	**1.0 (1.0)**

Table 5. Correlation of Constructs and Internal Composite Reliability (ICR)

(Diagonal elements in the matrix are the square root of the AVE)

***Structural Model*:** Since PLS makes no distributional assumption, traditional techniques for significance testing would not be appropriate (Chin, 1998). Chin (1998) argues that the key approach to test significance is to demonstrate strong loadings, high R-squares, and significant structural paths. As shown in Figure 2, the results for both countries well support the role of the TPB in explaining online shopping behavior. The estimated path coefficients (standardized) are given along with the associated t-values. R-squares for each dependent latent variable are also given.

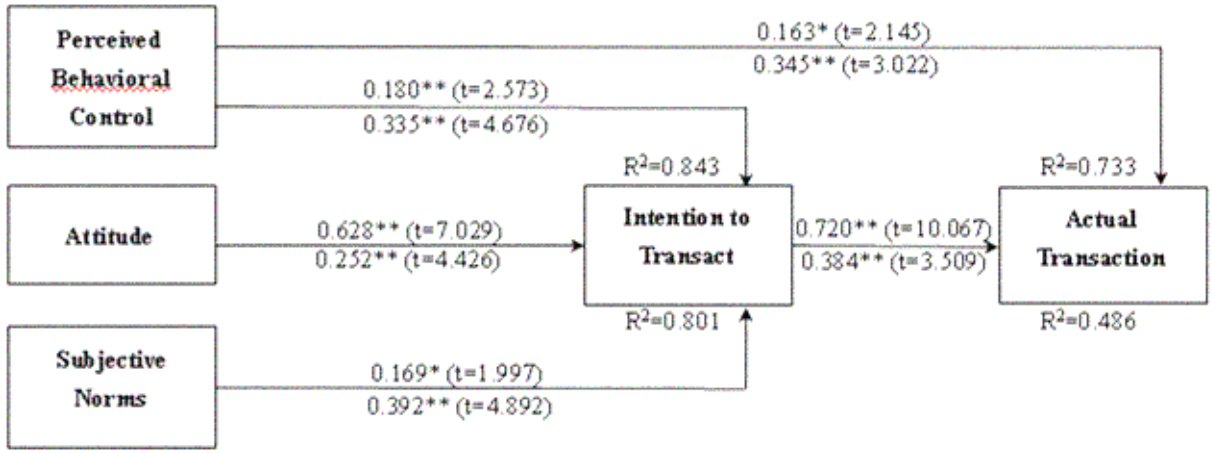

Figure 2. Results of PLS Analysis

(Top Coefficient: China; Bottom Coefficient: NZ; * p<0.05; ** p<0.01)

To understand the structural model, we start by looking at the R-squares for each dependent latent variable. It can be interpreted like R-squares in regression analysis (Chin, 1998). R-square measures the amount of variance explained in the latent variable.

As Figure 2 shows, R-squares for intention to transact and actual transaction are 0.843 and 0.733 respectively in NZ. This indicates a strong predictive power of the structural equation model when applying data collected from New Zealand online consumers. And R-squares for intention to transact and actual transaction are 0.801 and 0.486 respectively in China. The R-square for actual transaction is very low (0.486), probably indicating the existence of variables other than intention and perceived behavioral control, which can be used to measure actual online transaction. The interpretation for standardized path estimates is identical to that of traditional regression. Figure 2 shows the standardized path estimates for the proposed relationships.

This study uses the method of Bootstrapping (samples = 200) to generate t-statistics to test the significance levels of 1) loadings of indicators and 2) standardized path estimates. The loadings of indicators are all significant at $p<0.01$ as Table 3 shows. This indicates that the indicators used to measure latent variables all load significantly on the measured latent variables in both countries. As Figure 2 shows that all of the path coefficients are significant at the level of $p<0.01$ except two proposed relationships (perceived behavioural

control-actual transaction and subjective norms-intention to transact) are significant at the level of $p<0.05$ in NZ. Therefore, hypotheses 1a, 1b, 1c, 1d, 1e are supported.

To examine culture 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. Firstly, run bootstrap re-sampling (sample = 200) for the two groups (using data collected from NZ and China respectively) and treat the standard error (SE) estimates from each re-sampling in a parametric sense via t-tests. The t-value for the variance is calculated using the formula below (Chin, 2000).

$$\frac{Path_{sample\_1} - Path_{sample\_2}}{\left[\sqrt{\frac{(m-1)}{(m+n-2)} * S.E._{sample1}^2 + \frac{(n-1)}{(m+n-2)} * S.E._{sample2}^2}\right] * \left[\sqrt{\frac{1}{m} + \frac{1}{n}}\right]}$$

This would follow a t-distribution with m+n-2 degrees of freedom (m and n are sample sizes of two groups). The calculated t-statistics of differences in path coefficients between two cultures are shown in Table 6. As expected, the differences in path coefficients of the proposed relationships are all significant at the level of 0.01. Therefore, hypotheses 2a, 2b, 2c, and 2d are supported.

Hypotheses	Relationships	t-statistics	Assessment
2a	Perceived Behavioral Control-Actual Transaction	**18.392***	**Supported**
2b	Perceived Behavioral Control-Intention	**18.998***	**Supported**
2c	Attitude-Intention	**35.774***	**Supported**
2d	Subjective Norms-Intention	**23.129***	**Supported**
	Intention-Actual Transaction	***36.736****	

Table 6. 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 has also been found in Chan and Lau's (2001) study. This suggests the existence of some situational hindrance that discourages the effective translation of online purchasing intention to actual behaviour. Moreover, Chan and Lau (2001) suggest that more facilitating support (e.g. wider accessibility of Internet access, a secure online environment) from both the Chinese policy-maker and Web retailers is needed to strengthen the correspondence between intention and behavioral response. Therefore, we consider this difference is caused by differences in facilitating conditions rather than culture differences.

Discussion

To our best knowledge, there is no study in the context of OSB that has examined the cultural effect of long- vs. short-term orientation on the relationship between perceived behavioural control (PBC) and actual transaction. This study then contributes significantly to the

literature of cultural related OSB by proving the existence of cultural effects. There is only one research in the context of OSB which has examined the moderating effect of long- vs. short-term orientation on the relationship between PBC and intention to transact (Pavlou & Chai, 2002). However, this study excluded the construct 'actual transaction' in the research model.

This significant finding indicates that people from long-term oriented cultures require more behavioural control (self-efficacy) than people from short-term oriented cultures when they are intending or actually purchasing online. Therefore, Web retailers targeting long-term oriented cultures should encourage people's intention or actual transaction by improving their personal ability to purchase products or services online. A possible solution could involve providing free training or encouraging free trial on some e-commerce services.

The findings furthermore, confirm that the positive relationship between attitude and intention to transact is stronger in individualist cultures than in collectivist cultures. This finding is also consistent with research by Chan and Lau (2001), Lee (2000), and Kacen and Lee (2002). As discussed in literature review, the only study examining cultural effects in the context of OSB (Pavlou & Chai, 2002) has hypothesised that the relationship between attitude and intention is stronger in collectivist cultures than in individualist cultures. This is conflicting with other studies. This study has cleared up this disagreement by proving that the finding is consistent with most studies. This is another significant contribution to the literature of cultural-related OSB studies.

As a result, Web retailers targeting individualist cultures should carefully work out communication strategies which facilitate favourable attitudinal changes of their target online consumers. 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, in their communication campaigns, 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.

Since the positive relationship between subjective norms and intention to transact is stronger in collectivist cultures than in individualist cultures, Web retailers targeting online consumers in collectivist cultures should find a way to use existing customers' positive experiences to motivate future acceptance. To take advantage of the influence of such important referents, such as family members, friends, and popular press, Web retailers could feature relevant reference group appeal in their advertisements.

Conclusion

This study contributes to our understanding of online shopping behavior across cultures. A major contribution is the specification, justification, and empirical validation of a set of factors, which are associated with online shopping behavior in both New Zealand and China. Another key contribution of this study is the finding that by integrating cultural effects as

moderators, the key relationships in the research model are significantly different across cultures.

Although the empirical findings of this study are consistent with the theoretical reasoning, it is not totally free from limitations. One of the major limitations of this study is that non-probability sampling is used. An ideal probability sample could not be achieved due to time and cost limitations. Although the findings from the study of a non-probability sample cannot be confidently generalised to the population, it is believed that the findings from such a study still provide important information for future research (Cavana et al., 2001).

The present study was conducted cross-sectionally, where data is gathered just once. Although it is important for business to sell products or services, what is probably more important is to retain their customers (Limayem et al., 2000). This is not addressed in this research as change in behavior over time was not evaluated. Therefore, longitudinal study is recommended for future research, as it can capture the changes of online shopping behavior over time.

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