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Investigating Sustainable Consumption Behaviour among American and Chinese Consumers

The Value and Challenge of Consuming Sustainability

Changing consumption practices into more sustainable consumption behaviours is vital in helping to solve the planet's impending ecological and human crises. Sustainable consumption is of value because it goes beyond self-interest to include the welfare of others and the planet, in-line with more civic behaviour. This concurs with the views of amongst others, Peattie and Peattie (2009) and Prothero et al. (2011). Sustainable consumption can (1) increase the life chances of more people and the planet by equalising the distribution of resources to increase quality-of-life, (2) integrate the needs of future generations into current choice-making by not excessively using resources and (3) reduce the negative environmental impact of over-consumption and consumerism to significantly minimize ecological destruction (Dermody et al., 2015). It can therefore make a significant contribution in increasing the life chances of people and the planet. Substantial research evidence, however, reveals that the majority of individual consumers are not willing to dramatically change their consumption behavior to help resolve these problems, even though they are aware of the potential problems and express a degree of concern about them (Prothero et al., 2011; Proulx, 2014). This is partially due to the dominant social paradigm (DSP) (Pirages and Ehrlich, 1974) of economic growth and consumerism in Western societies (and increasingly Eastern ones). It is also a consequence of consumerism being symbolically important to consumers' identity construction and preservation, and thus their sense of self and in facilitating the development of their relationships with others (Belk, 2010; Soron, 2010; Whitmarsh and O'Neill, 2010). The difficulties of changing consumption patterns are also compounded by two problematic elements in the research conducted. Firstly studies are too narrow. There is increasing recognition that more holistic research is needed to generate broader theoretical and behaviourally integrated explanations of consumers' adoption or rejection of sustainable consumption behavior (Chabowski et al., 2011). Secondly, there is insufficient cross-cultural research exploring cultural differences in sustainable consumption behaviour (Hurst et al., 2013; Steg et al., 2014), which is impeding developments in understanding and the creation of solutions for behavioural change. Accordingly in our research we have adopted a multi-construct, cross-cultural approach to our study. In this paper we report our findings from two culturally distinct nations – the US and China – to examine the influences of materialism, social consumption motivation, environmental concern and pro-environmental self-identity on sustainable consumption behaviours among American and Chinese consumers. This paper therefore contributes to our understanding of sustainable consumption practices and how they can be advanced in Western and Eastern societies.

Conceptual Development Synopsis

The (non)adoption of sustainable consumption practices by consumers is influenced by innumerable micro and macro influences. In this paper, four constructs have been identified as important explanations of the (non)adoption of sustainable consumption: (1) materialism, (2) social consumption motivation, (3) environmental concern and (4) pro-environmental self-identity. Space precludes us providing a detailed account of each of these constructs; instead we focus on a brief account of their relevance. A more detailed account of them can be found in Dermody et al. (2015).

Materialism & Social Consumption Motivation: Materialism strongly influences consumption choice-making. It is a major driver of over-consumption because it depicts a values orientation portraying the importance of possessions to consumers. While materialism dominates in the West, it is also invading developing economies, for example the increasing rapacious desire of Chinese consumers for material possessions (Hao, 2014; Podoshen et al., 2011). While the impact of materialism on sustainable consumption in non-western cultures is less well understood, western evidence confirms pro-environmental behaviour, including sustainable consumption, is strongly undermined by a materialistic orientation (Kilbourne and Pickett, 2008). Consequently materialism can cause long-term damage for society and consumers (Burroughs and Rindfleisch, 2002). Accordingly our first hypothesis proposes -H1: Materialism has a negative impact on sustainable consumption behaviour. In portraying the ownership of possessions to others, social consumption motivation helps to explain materialist's pursuit and acquirement of possessions (Moschis (1981). Fitzmaurice and Comegys (2006) confirmed a significant positive relationship between materialism and social consumption motivation. However further research is needed to determine the connection between social consumption motivation and actual behaviour. Sustainable consumption behaviours might be encouraged through the social visibility of social consumption motivation, which enables the expression of pro-environmental attitude to significant others, e.g. in-groups and 'face'. Vermeir and Verbeke (2008) found such a relationship for sustainable food consumption intention. Therefore our second hypothesis purports -H2: Social consumption motivation has a positive impact on sustainable consumption behaviour.

Environmental Concern: Environmental concern has been considered a major explanation of why consumers do/do not consume more sustainably (Hartmann and Apaolaza-Ibáñez, 2012; Kilbourne and Pickett, 2008). Individuals are considered to possess environmental concern when they are aware of environmental problems and personally support and/or engage in solutions to help resolve them (Dunlap and Jones, 2002). Beyond the problems in the West, understanding the influence of environmental concern is crucial in China because of growing concern over its economic expansion and the negative impact on the environment (Hao, 2014; Harris, 2006). However, research has shown low/moderate relationship between environmental concern and environmental behaviour (Dunlap et al., 1993; Thøgersen, 2000). Bamberg (2003) therefore suggests the influence of environmental concern on situation-specific sustainability-orientated behaviours may be more indirect. Overall environmental concern can act as an accessible heuristic to ease consumers sustainable consumption choice-making within their normal consumption scape. Our third hypothesis is therefore -H3: Environmental concern has a positive impact on sustainable consumption behaviour.

Pro-environmental Self-identity: Individuals possessing pro-environmental self-identity have a sense of self that embraces pro-environmental actions (van der Werff et al., 2013). While self-identity has not been extensively applied to sustainable consumption (Schaefer and Crane, 2005), it has been found to be a strong predictor of pro-environmental behaviour. This is because it 'regulates' attitude-behaviour consistency (Whitmarsh and O'Neill, 2010) and reflects the symbolic nature of consumption (Soror, 2010). In essence through acts of sustainable consumption, an individual expresses their active 'pro-environmental self'. Pro-environmental self-identity can therefore advance understanding of

sustainable consumption behaviours of pro-environmental consumers (Fielding et al., 2008; Kashima et al., 2014; Sparks and Shepherd, 1992). There is, however, limited comprehension of the effect of pro-environmental self-identity on the sustainable consumption behaviours of non-western cultures characterised by economic and consumption growth, for example China. Thus our fourth hypothesis is -H4: Pro-environmental self-identity has a positive impact on sustainable consumption behaviour.

Mediating Effects: More recent studies have provided provisional support for the mediating role of pro-environmental self-identity between values, environmental preferences and behavior (van der Werff et al., 2013; Whitmarsh and O'Neill, 2010). Gatersleben et al. (2012) comment: "Not only did we find that environmental identities tended to explain additional variance over and above value items, we also found the link between values and pro-environmental behavior was either fully or partially mediated by identities". This is because values reflect an individuals' ideal self; however environmental self-identity is also influenced by past behavior and so more closely represents actual self. Potentially therefore, pro-environmental self-identity might be influenced by the values orientation of materialism, social consumption motivation (via social value of acquisitions) and environmental concern. Our final hypothesis tests these prospective mediating effects for both the US and China. H5: Pro-environmental self-identity mediates the effect of (a) materialism, (b) social consumption motivation and (c) environmental concern on sustainable consumption behaviour.

Research Design

Data was collected using a quantitative online panel survey. This was hosted and released by SSI, a commercial marketing research firm, who provided an online panel representative of the general population in the US and China. SSI tested the online surveys with their panel, before a stratified sampling with quotas applied on stratas was employed to ensure the representativeness of the participants of the general US and China population. Data were collected during June-July 2014 and the final sample comprised of 1,018 adults from the US and 1,025 adults from China. The panel provider undertook all relevant checks to ensure sampling rigour and representativeness.

Materialism (MAT) was measured using 18 items from the well-established Material Values Scale (Richins and Dawson, 1992). This scale has been utilised in China with acceptable reliability (Chan et al., 2006; Yang and Ganahl, 2004). Environmental concern (EC) was measured with four items adapted from Ellen et al. (1991). Four-items measuring social consumption motivation (SCM) were adopted (Moschis, 1985; Moschis and Churchill, 1978). The pro-environmental self-identity (PESI) scale used in this study consists of five items adapted from Whitmarsh and O'Neill (2010) and Roberts (1996). Sustainable consumption behaviour (SCB) was adapted from Whitmarsh and O'Neill (2010) and entailed buying organic food, environmentally friendly products, products with reduced packaging, local produce and fair-trade groceries. A 5-point never (1) to always (5) Likert scale was used. This approach is in line with the literature (Whitmarsh, 2011). All scales demonstrated acceptable construct reliabilities. Construct reliabilities and Pearson correlation coefficients were computed for all latent variables of this study and are displayed in Table 1 (Appendix 1).

Results

The findings of the independent sample t-test demonstrated significant differences between US and China with regard to materialism ($t=21.06$, $p<.001$), social consumption motivation ($t=38.42$, $p<.001$), environmental concern ($t=3.85$, $p<.001$), pro-environmental self-identity($t=6.49$, $p<.001$) and sustainable consumption behavior ($t=23.12$, $p<.001$)(Table 2, Appendix 1). Significantly higher levels of materialism and social consumption motivation were found in the Chinese sample, in contrast to the US sample. Somewhat unexpectedly, the Chinese respondents expressed significantly more environmental concern, showed significantly higher levels of pro-environmental self-identity, and were significantly more often committed to pro-environmental purchase/consumption behaviours.

To test the direct proposed relationships, a linear hierarchical regression analysis using ordinary least squares was performed for each country (Table 3, Appendix 1). An examination of the variance inflation factors (VIFs) showed that no values were above 1.6 and thus confirms that multicollinearity is very low. The results show that the antecedents accounted for 28% (US) and 22% (China) of the variance in sustainable consumption behaviour.

Materialism significantly influences sustainable consumption behaviour; however, significant cultural differences between the US and China were found. For the US sample, the beta for 'materialism' was negative ($\beta=-.08$, $p<.001$), whilst for the Chinese sample, a positive relationship between materialism and sustainable consumption behavior was observed ($\beta=.10$, $p<.001$). Thus H1 is accepted in the US context and rejected in the Chinese context. The influence of social consumption motivation was significant, positive and of similar size for both nations (US: $\beta=.36$, $p<.001$, China: $\beta=.26$, $p<.001$), thus supporting H2. Environmental concern had no direct significant positive influence on sustainable consumption behaviours in both nations (US: $\beta=-.03$, $p>.05$, China: $\beta=-.06$, $p>.05$), thus no support could be found for H3. The results demonstrate a positive significant influence of pro-environmental self-identity on sustainable consumption behavior for both samples (US: $\beta=.47$, $p<.001$, China: $\beta=.30$, $p<.001$), supporting H4.

The mediating role of pro-environmental self-identity was assessed by applying the bootstrapping bias-corrected confidence interval procedure (Preacher and Hayes, 2008; Zhao et al., US and China. H5: Pro-environmental self-identity mediates the effect of (a) materialism, (b) social consumption motivation and (c) environmental concern on sustainable consumption behaviour. Research Design Data was collected using a quantitative online panel survey. This was hosted and released by SSI, a commercial marketing research firm, who provided an online panel representative of the general population in the US and China. SSI tested the online surveys with their panel, before a stratified sampling with quotas applied on stratas was employed to ensure the representativeness of the participants of the general US and China population. Data were collected during June-July 2014 and the final sample comprised of 1,018 adults from the US and 1,025 adults from China. The panel provider undertook all relevant checks to ensure sampling rigour and representativeness. Materialism (MAT) was measured using 18 items from the well-established Material Values Scale (Richins and Dawson, 1992). This scale has been utilised in China with acceptable reliability (Chanet al., 2006; Yang and Ganahl, 2004). Environmental concern (EC) was measured with four items adapted from Ellen et al. (1991). Four-items measuring social consumption motivation (SCM)

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Table 4, the true indirect effect of materialism on sustainable consumption behavior via pro-environmental self-identity is estimated to lie between $-.096$ and $-.008$ for the US and between 0.079 and 0.153 for China with 95% confidence. This indirect effect is significant as no zero is included in the 95% confidence interval (Preacher and Hayes, 2004). Thus H5a can be confirmed for the US sample and similarly for the Chinese sample. Due to the direct effect of materialism on sustainable consumption behavior (see Table 1, Appendix 1) only partial mediation of pro-environmental self-identity was confirmed. The effect of social consumption motivation on sustainable consumption behavior is also mediated by pro-environmental identity for the US and the Chinese sample, respectively, as no zeros are included in the confidence interval. This gives support to H5b but only for partial mediation due to the direct significant effects of social consumption motivation on sustainable consumption behavior when controlling for mediation. Likewise, the bootstrap method indicated a significant mediation effect of pro-environmental self-identity on environmental concern for both samples, thus supporting H5c. For the Chinese sample, full mediation is supported as environmental concern had no direct influence on sustainable consumption behavior ($r = .056$, $p > .05$), whilst for the US there was only partial mediation. Overall the results confirmed a partial or full mediation effect of pro-environmental self-identity on sustainable consumption behaviour, thus materialism, environmental concern and social consumption motivation have either a direct or indirect effect on sustainable consumption behavior via pro-environmental self-identity.

Analysis

Chinese respondents differed from US respondents in terms of their higher levels of materialism and social consumption motivation. The findings contribute to emerging evidence implying consumers from emerging markets are more materialistic than those from developed countries, with a stronger propensity to display their acquisitions to others (IPSOS, 2013; Sharma, 2011). IPSOS Mori (2013) acknowledged China as the country with both the highest materialistic values and the highest propensity to judge an individual's success by what they own. Even so, Hurst et al. (2013) argue the pursuit of extra wealth among Chinese consumers may be positively associated with important well-being factors including the satisfaction of primary psychological needs, for example success and happiness which can help gain 'face' (mian-tsu). Therefore potentially materialism is viewed differently in China compared with the US. Interestingly, beyond being high materialists, Chinese respondents also showed significantly more environmental concern, pro-environmental self-identity and sustainable consumption behavior compared with the US respondents. With respect to environmental concern, living with problems like environmental pollution is a much more likely reality in

China compared with Western nations. Therefore in China, the closeness and tangibility of these problems may trigger greater negative emotions of fear and anxiety concerning ecology, health and well-being. In the US, while individuals frequently witness unfolding environmental problems, these are mediated by the media, and still, to some extent, disbelief in the authenticity of (accelerated) climate change. This enables a 'distance' to be maintained. There is evidence of this greater immediacy in China from a recent Discovery report (Staedter, 2013) that identified that seven out of the ten most air-polluted cities are located in China. Consequently the Chinese Government has identified environmental issues and sustainable growth as important agenda items (CCICED, 2013).

For hypotheses 1, 2 and 3 the responses of Chinese and US respondents were similar on the influence of social consumption motivation and the non-influence of environmental concern on their reported sustainable consumption behaviours. Regarding the rejection of H3, notably the effect of environmental concern on sustainable consumption is overridden by pro-environmental self-identity. This increases confidence in the importance of pro-environmental self-identity to more comprehensively explain why consumers do and do not consume sustainably. Fuller consideration of the Eastern versus Western differences between materialism and sustainable consumption behaviours trigger some interesting ideas. The US results concur with the dominant viewpoint in Western literature—the negative relationship between materialism and sustainable consumption—that represents the conflicting ideologies between market-growth (the DSP) and sustainability. However, in China, our results give a positive relationship between materialism and sustainable consumption. It may well be that materialism is interpreted differently by the Chinese, in concurrence with different global cultural identities. This interpretation is supported by the research of Hurst et al. (2013) and Strizhakova and Coulter (2013). Thus our findings support the work of Shrum et al. (2014)—materialism—in its signaling to self and others can be positive; and this effect is compounded when sustainable products are more expensive and consumed in public (Griskevicius et al., 2010). In emerging markets like China, this is being promoted as 'green materialism'. However it is highly problematic because it is short-term and highly risky in its failure to understand the parameters for sustainable consumption. In hypothesis 4, the results of the relationship between pro-environmental self-identity and sustainable consumption behavior, for both the US and China, support prior studies indicating pro-environmental self-identity has a positive significant influence on sustainable consumption behaviour (Fielding et al., 2008; Whitmarsh and O'Neill, 2010). However, whilst this is established in Western literature, no previous research has been identified for China. Concurring with the ideas of Belk (2010) amongst others therefore, sustainable consumption behavior can be symbolically self-expressive in portraying consumers sense of their 'pro-environmental self' in both Western and Eastern cultures. However different east-west cultural interpretations of self-identity may exist (Chan and Zhang, 2007). Consequently in the US, pro-environmental self may represent an individualistic orientation, whilst in China a more relational interplay between social ties, cultural norms and mien-tsuin responding to environmental problems for the 'common good'. Therefore, the potentially different meaning and influence of pro-environmental self-identity in Eastern cultures necessitates further exploration. Hypotheses 5a,b,c investigated the possible mediating effect of pro-environmental self-identity. Our findings indicate pro-environmental self-identity mediates sustainable consumption behavior and values; thereby supporting prior research (Gatersleben et al., 2012; van der Werff et al.,

2013; Whitmarsh and O'Neill, 2010). However our study expands understanding of this mediation—and thus influences on sustainable consumption behaviours—via the antecedents of materialism, social consumption motivation and environmental concern. In all cases pro-environmental self-identity was confirmed as a full or partial mediator in that relationship. Our findings strengthen 'identity campaigns' as a potentially successful marketing strategy to promote sustainable consumption behavior and to challenge the extant materialistic values characteristic of Western and increasingly Eastern societies. Marketing Implications Marketing, as it is currently conceptualised and practiced, feeds consumer desire for possessions. Thus it helps to fuel increasingly global materialistic values in stark contrast to the urgent need to advance environmental and human capital. It is now necessary for marketing to become more responsible and more accountable in utilising its persuasive strengths to reinforce personal values and identity-construction via consumption choice-making. Marketing strategies need to fundamentally address the need to advance sustainable consumption using individuals' values and related self-identity—identity campaigning. As Gatersleben et al. (2012) observe, "unless these deeper constructs [of values and identities] are engaged, any change towards pro-environmental behaviour will be piecemeal, slow and disjointed". Failure to do so will increase the risk of rebound, whereby sustainability behavior in one domain results in less in another. Carbon trading is an example of this rebound, and its pervasiveness has undermined many gains made in more sustainable product and services consumption (Crompton and Kasser, 2010). This reorientation of marketing will be viewed as a threat by many global corporations and individual countries' economic growth strategies, thus it will need to be managed with intelligence and empathy, requiring all stakeholders to work together for a 'common good'. It will necessitate greater adoption of self-transcendence societal values, and thus recognition of the importance of prioritizing personal growth, close family relationships and community well-being. This will replace self-enhancement societal values (financial success, image and fame) which must become less dominant in the West (Brown and Kasser, 2005) and prevented from 'invading' Eastern values. Furthermore the myth of "green" materialism emerging in BRIC markets (Strizhakova and Coulter, 2013) is potentially disastrous and needs to be exploded. Academics have a responsibility to ensure this does not become normalised in societal values and inevitably marketing mindsets and policy-making. Building on these conclusions, cultural tailoring of sustainability marketing strategies is necessary, and long-overdue. Research shows that China, whilst adopting increasingly materialistic and consumerist values, has not arrived at this destination in the same way as the West has done, and thus westernised messages should not be applied. Supporting the conclusion of Thøgersen and Zhou (2012), it is vital China does not repeat the mistakes of the West and implant unfulfilling and unsustainable consumerism into her values and norms, nor reposition them as positive 'green materialistic values'.

Further Research

We recognize this research is premised on reported behaviours rather than observed behaviours, thus meriting further investigation. We also appreciate that the US and China are being used here to represent the West and East. While both are superpowers in feeding the consumerism machine, we are cognizant of the importance of other Western-Eastern cultures too (but space excludes our

extended dataset). At the more conceptual level, three areas of further research emerge. We have identified a mediating role for pro-environmental self-identity in explaining sustainable consumption behavior. While this is an important finding, its relationship with environmental concern, social consumption motivation and materialism requires more in-depth research exploration. This relationship also needs to be examined with other antecedents. This includes how self-identity can impede sustainable consumption, as well as how pro-environmental self-identity is created. Furthermore it would be valuable to explore if other identities can aid the adoption of sustainable consumption behaviours, for example the identity of a 'good citizen'. We have emphasized the importance of identifying different cultural understandings of Western concepts, e.g. materialism; pro-environmental self-identity. Further research is needed to explore these 'meanings' in more depth and their implications in advancing sustainable consumption. Thus further research to deconstruct and address 'green materialism' is critical. Exploring the culturally different meanings of pro-environmental self-identity is also important. This is because positioning pro-environmental self-identity as a priority within a person's hierarchy of salience remains a key task for environmental communicators; and it needs to be underpinned by good research evidence. Research is also needed to identify how multi-cultural stakeholders can effectively unite to generate solutions to the planet's global ecological and human problems. Therefore, in conjunction with other studies (Hurst et al., 2013; Price et al., 2014), significantly more research of this kind is needed to generate global but differentiated approaches to promoting sustainable consumption behavior that is both timely and effective.

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Appendix 1 Tables of Results

Table 1: Reliability coefficients and correlations among latent constructs for US and China

Construct	MAT	SCM	EC	PESI	SCB
MAT	.881 (.790)	.500**	-.084**	-.085**	.063*
SCM	.330**	.874 (.794)	-.215**	-.120**	.271**
EC	.122**	-.176**	.735 (.766)	.614**	.190**
PESI	.236**	.166**	.512**	.671 (.638)	.417**
SCB	.252**	.359**	.056	.336**	.862 (.779)

Note: Values in the diagonal represent construct reliabilities for the US and for China in brackets, values above the diagonal represent correlations for the US sample, whilst values below the diagonally represent correlations for the Chinese sample. * $p < .05$, ** $p < .001$

Table 2: Means, standard deviation and t-test results

Variables	Means (SD)		t	df	p-value
	US (n=1018)	China (n=1025)			
MAT	2.75 (.63)	3.25 (.43)	21.06	1787	.000
SCM	2.21 (.97)	3.65 (.71)	38.42	1859	.000
EC	3.29 (.82)	3.43 (.81)	3.85	2041	.000
PESI	3.70 (.65)	3.88 (.57)	6.49	2003	.000
SCB	2.68 (.87)	3.49 (.70)	23.12	1951	.000

Table 3: OLS multiple regression analyses with sustainable consumption behavior (SCB) as dependent variable

	<i>US</i>		<i>China</i>	
	<i>Beta</i>	<i>t-Value</i>	<i>Beta</i>	<i>t-Value</i>
MAT	-.080	-3.563*	.102	3.379*
SCM	.362	11.523*	.264	8.461*
EC	-.028	-.0813	-.064	-1.864
PESI	.470	13.935*	.301	8.842*
R ²	.28		.22	
F statistic	100.25*		70.98*	

Note: * denotes significant at $p < .001$

Table 4: Bootstrap bias-corrected method 95% CI for PESI as a mediator and SCB as the dependent variable

	Point estimate	SE	Lower	Upper	p-value	Mediation Results
US						
MAT	-.051	.0223	-.096	-.008	.001	Partial mediation
SCM	-.049	.0140	-.077	-.021	.001	Partial mediation
EC	.313	.0263	.263	.366	.001	Partial mediation
China						
MAT	.113	.0185	.079	.153	.001	Partial mediation
SCM	.047	.0104	.028	.069	.001	Partial mediation
EC	.186	.0198	.148	.227	.001	Full mediation