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The Effects of Individual Values on Online Shopping Spending

MARKUS MAKKONEN, LAURI FRANK & TIINA KEMPPAINEN

Abstract Although individual values have been found as important antecedents of human behaviour, their effects on online shopping behaviour remain poorly understood. In this study, we aim to address this gap in prior research by examining the effects of individual values on both total online shopping spending and the specific types of online shopping spending in terms of orders made (1) with traditional computers versus mobile devices, (2) from businesses versus other consumers, and (3) from domestic versus foreign online stores. The examination is based on the data from 565 Finnish online shoppers, which was collected via an online survey between February 2019 and March 2019 and is analysed by using structural equation modelling (SEM). The findings of the study suggest that stimulation and humility act as the most important antecedents of online shopping spending but there are also seven other individual values with interesting effects on specific types of online shopping spending.

Keywords: • Online Shopping Spending • Individual Values • Mobile Online Shopping • Business-to-Consumer • Consumer-to-Consumer • Domestic Online Stores • Foreign Online Stores • Online Survey • Finland •

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1 Introduction

Individual values have been found as important antecedents of human behaviour. For example, in the context of information systems (IS), values have been found to influence, information and communication technology (ICT) use (Goncalves, Oliveira & Cruz-Jesus, 2018), Internet use (Bagchi et al., 2015; Choden et al., 2019), the evaluation of IS and ICT products and services (Kujala & Väänänen-Vainio-Mattila, 2009; Partala & Kujala, 2016), technology adoption (Isomursu et al., 2011; Partala & Saari, 2015), technology design (Kinnula et al., 2018), the adherence to information security rules (Myyry et al., 2009), the motivations of hackers (Madarie, 2017), the motivations for contributing to open source initiatives (Oreg & Nov, 2008), project team success (Jetu & Riedl, 2013), as well as online gaming (Ramírez-Correa, Rondán-Cataluña & Arenas-Gaitán, 2018). Respectively, in the context of marketing, values have been found to influence various aspects of consumer behaviour, such as sustainable consumption (Thøgersen & Ölander, 2002), ethical consumption (Shaw et al., 2005), conscious consumption (Pepper, Jackson & Uzzell, 2009), and fair-trade consumption (Doran, 2009). However, at the intersection of IS and marketing – electronic commerce – there have been very few prior studies on the effects of values on online shopping behaviour. The few exemptions to this are the studies by Jayawardhena (2004), Hansen (2008), as well as Wu, Cai, and Liu (2011), but they also have focused only on very abstract and general conceptualisations of both values and online shopping behaviours instead of more in-depth inquiries.

In this study, our aim is to address the aforementioned gap in prior research by examining the effects of individual values on online shopping spending. However, in addition to focusing only on total online shopping spending, we will focus also on the specific types of online shopping spending in terms of orders made (1) with traditional (i.e., desktop or laptop) computers versus mobile devices (e.g., mobile phones and tablet computers), (2) from businesses (i.e., business-to-consumer, B2C) versus other consumers (i.e., consumer-to-consumer, C2C), and (3) from domestic versus foreign online stores. These specific types of online shopping spending were selected both due to their practical relevance to the managers of online stores and due to the interest shown in them in prior research (e.g., Leonard & Jones, 2010; Groß, 2015; Huang & Chang, 2017; Mou et al., 2017). The examinations are based on the data from 565 Finnish online shoppers, which was collected via an online survey between

February 2019 and March 2019 and is analysed by using structural equation modelling (SEM).

The paper consists of six sections. After this introductory section, we will next briefly discuss individual values in Section 2. This is followed by a description of the methodology of the study in Section 3. The results of the study are reported in Section 4 and discussed in more detail in Section 5. Finally, we will conclude the paper with a discussion of the limitations of the study and some potential paths of future research in Section 6.

2 Individual Values

According to Schwartz (1992), individual values are commonly considered to have five formal features: (1) they are concepts or beliefs, (2) they pertain to desirable end states or behaviours, (3) they transcend specific situations, (4) they guide the selection or evaluation of behaviour and events, and (5) they are ordered by relative importance. Over the years, numerous studies (e.g., Rokeach, 1973; Schwartz & Bilsky, 1987; Schwartz, 1992) have suggested that the values held by individuals have a significant impact on their behaviours. As a consequence, multiple ways to measure values have been proposed. These include the Rokeach Value Survey (RVS) by Rokeach (1973), the Values and Lifestyles (VALS) by Mitchell (1983), and the List of Values (LOV) by Kahle (1983). However, probably the two most well-known and widely-used measures of values are the Schwartz Value Survey (SVS) by Schwartz (1992) and the Portrait Values Questionnaire (PVQ) by Schwartz et al. (2001), which are both based on the theory of basic human values by Schwartz (1992). In this study, we will also base our measurement of values on this same theory, or more specifically its more recent refinement by Schwarz et al. (2012). This refined theory of basic individual values identifies a total of 19 individual values with different motivational goals, which are all listed in Table 1.

Table 1: Individual values and their motivational goals (Schwartz et al., 2012)

Individual value	Definition in terms of motivational goals
Self-direction–thought	Freedom to cultivate one's own ideas and abilities
Self-direction–action	Freedom to determine one's own actions
Stimulation	Excitement, novelty, and change
Hedonism	Pleasure and sensuous gratification
Achievement	Success according to social standards
Power–dominance	Power through exercising control over people
Power–resources	Power through control of material and social resources
Face	Security and power through maintaining one's public image and avoiding humiliation
Security–personal	Safety in one's immediate environment
Security–societal	Safety and stability in the wider society
Tradition	Maintaining and preserving cultural, family, or religious traditions
Conformity–rules	Compliance with rules, laws, and formal obligations
Conformity–interpersonal	Avoidance of upsetting or harming other people
Humility	Recognizing one's insignificance in the larger scheme of things
Benevolence–caring	Devotion to the welfare of ingroup members
Benevolence–dependability	Being a reliable and trustworthy member of the ingroup
Universalism–concern	Commitment to equality, justice, and protection for all people
Universalism–nature	Preservation of the natural environment
Universalism–tolerance	Acceptance and understanding of those who are different from oneself

These values are assumed to from a circular motivational continuum as illustrated in Figure 1. As described by Schwartz et al. (2012), closest to the centre are the values themselves, which are arranged in a circular order so that the values that have compatible motivational goals are closest to each other, whereas the values that have conflicting motivational goals are furthest away from each other. The second circle from the centre groups the 19 values into four higher-order values. Of them, the openness to change values emphasise readiness for new ideas, actions, and experiences. They contrast with the conservation values that emphasise self-restriction, order, and avoiding change. In turn, the self-enhancement values emphasise pursuing one's own interests. They contrast with the self-transcendence values that emphasise transcending one's own interests for the sake of others. The two outmost circles depict the more in-depth theoretical basis behind the order of the values. The values bounded by the right side of the third circle from the centre have a personal focus, so they are concerned with the outcomes for self. In contrast, the values bounded by the left side of the third circle from the centre have a social focus, so they are concerned with the outcomes for others or for established institutions. Finally, the values bounded by the top half of the fourth circle from the centre foster growth and self-expansion and are more likely to motivate people when they are free of anxiety. In contrast, the values bounded by the lower half of the fourth circle from the centre serve self-protection and aim to avoid anxiety.

Figure 1: Refined theory of basic individual values (Schwartz et al., 2012)

3 Methodology

The data for this study was collected via an online survey between February 2019 and March 2019. The respondents were recruited mainly by sharing the survey link through the internal communication channels (e.g., mailing list, newsletters, and bulletin boards) of our university. In addition, because the respondents who completed the survey were able to take part in a price draw of ten cinema tickets, the survey link was also posted to six websites promoting online competitions. The survey questionnaire consisted of multiple items related to the demographics of the respondents (e.g., gender, age, and income), their online shopping behaviour (e.g., how often do they shop online), as well as their personality and values. The aforementioned 19 individual values were measured reflectively by two items each. This set of 38 items was adapted from Schwartz et al. (2012) and is reported in Appendix A. The measurement scale of the items was the standard five-point Likert scale. There was also the option to give no response, which resulted in a missing value. In turn, online shopping spending was measured by first asking the respondents to assess their average monthly online shopping spending in euros. After this, the respondents were asked to assess with three pairs of percentages how this spending is distributed between the orders made (1) with traditional computers versus mobile devices, (2) from businesses versus other consumers, and (3) from domestic versus foreign online stores. Each of these three pairs of percentages was required to sum up to one hundred.

The collected data was analysed by using covariance-based structural equation modelling (SEM) conducted with the Mplus version 7.11 statistical software (Muthén & Muthén, 2019). Due to the non-normal distributions of many of the indicator variables, the model estimation was conducted by using the MLR estimator, which stands for maximum likelihood estimator robust to non-normal data. The missing values in the indicator variables were handled by using the FIML estimator, which stands for full information maximum likelihood and uses all the available data in the model estimation. In total, we estimated seven separate models, in each of which we examined the effects of the same value constructs on a different outcome variable. In the first model, we examined the effects of individual values on total online shopping spending. In the remaining six models, we examined the effects of individual values on the specific types of online shopping spending in terms of orders made (1) with traditional computers, (2) with mobile devices, (3) from businesses, (4) from other consumers, (5) from

domestic online stores, and (6) from foreign online stores. These specific types of online shopping spending were calculated by simply multiplying the total online shopping spending with the appropriate percentages. In each of the seven models, we also controlled the effects of gender, age, and income by using these variables as covariates of the outcome variable. In the case of gender, men were coded as zero and women were coded as one. In the case of income, the values of the control variable ranged from one to seven, which represented the seven income classes reported in Table 2.

4 Results

In total, we received 580 responses to our online survey. However, 15 of these responses had to be dropped from the study due to invalid or missing data, resulting in a sample size of 565 responses to be used in the actual analyses. The descriptive statistics of this sample are reported in Table 2. As can be seen, the majority of the respondents were women. The age of the respondents ranged from 18 to 78 years, with a mean of 35.1 years and a standard deviation of 13.3 years. Because of the recruitment strategy, students constituted a considerable share of the respondents (34.9 %). However, the respondents were relatively active online shoppers, and most of them (74.9 %) shopped online at least monthly. The reported average monthly online shopping spending of the respondents ranged from 0 € to 1,500 €, with a mean of 86.39 € and a standard deviation of 126.53 €. Of this total spending, the respondents reported using about 61 % on orders made with traditional computers and about 39 % on orders made with mobile devices, which resulted the spending on orders made with traditional computers to have a mean of 49.26 € and a standard deviation of 86.70 € and the spending on orders made with mobile devices to have a mean of 37.12 € and a standard deviation of 83.25 €. Respectively, of the total spending, the respondents reported using about 77 % on orders made from businesses and about 23 % on orders made from other consumers, which resulted the spending on orders made from businesses to have a mean of 67.22 € and a standard deviation of 98.18 € and the spending on orders made from other consumers to have a mean of 19.17 € and a standard deviation of 44.51 €. Finally, of the spending on orders made from businesses, the respondents reported using about 63 % on orders made from domestic online stores and about 37 % on orders made from foreign online stores, which resulted the spending on orders made from domestic online stores to have a mean of 39.97 € and a standard deviation

of 58.97 € and the spending on orders made from foreign online stores to have a mean of 27.25 € and a standard deviation of 65.19 €. The percentages of missing data, means, and standard deviations (SD) of the 38 items measuring the 19 individual values are reported in Appendix A.

Table 2: Descriptive sample statistics (N = 565)

	N	%
Gender		
Man	168	29.7
Woman	397	70.3
Age		
Under 30 years	262	46.4
30–39 years	127	22.5
40–49 years	76	13.5
50–59 years	62	11.0
60 years or over	38	6.7
Yearly taxable income		
Under 10,000 €	159	28.1
10,000–19,999 €	105	18.6
20,000–29,999 €	60	10.6
30,000–39,999 €	67	11.9
40,000–49,999 €	45	8.0
50,000–59,999 €	17	3.0
60,000 € or over	18	3.2
No response	94	16.6
Socioeconomic status		
Student	197	34.9
Employed or entrepreneur	259	45.8
Unemployed or unable to work	63	11.2

Retired	36	6.4
Other	10	1.8
On average, how often do you shop online?		
Weekly	63	11.2
Monthly	360	63.7
Yearly	121	21.4
Less than yearly	17	3.0
No response	4	0.7

In the following three sub-sections, we will first evaluate the reliability, validity, and goodness-of-fit of the generic measurement model that contains all the value constructs but does not yet contain any of the outcome variables. In the final sub-section, we will report the estimation results for the seven models that contain also the outcome variables.

4.1 Indicator Reliability and Validity

Indicator reliabilities and validities were evaluated by using the standardised loadings of the indicators, which are reported in Appendix B. In the typical case where each indicator loads on only one construct, it is commonly expected that the standardised loading of each indicator should be statistically significant and greater than or equal to 0.707 (Fornell & Larcker, 1981). This is equal to the standardised residual of each indicator being less than or equal to 0.5, meaning that at least half of the variance of each indicator is explained by the construct on which it loads. However, also a less strict criterion of the standardised loading of each indicator being statistically significant and greater than or equal to 0.6 has been commonly used (Bagozzi & Yi, 1988). As can be seen form Appendix B, 36 out of the 38 indicators were found to meet the former stricter criterion, and also the two remaining indicators met the latter less strict criterion. Thus, we consider all the indicators to have satisfactory reliability and validity.

4.2 Construct Reliability and Validity

Construct reliabilities were evaluated by using the composite reliabilities (CR) of the constructs (Fornell & Larcker, 1981), which are reported in Appendix B. In order to have satisfactory reliability, it is commonly expected that the CR of the construct should be greater than or equal to 0.6 (Bagozzi & Yi, 1988). As can be seen, all the constructs were found to meet this criterion. In turn, construct validities were evaluated by examining the convergent and discriminant validity of the constructs with the two criteria proposed by Fornell and Larcker (1981). Both of them are based on the average variance extracted (AVE) of the constructs, which refers to the average proportion of variance that a construct explains in its indicators. In order to have satisfactory convergent validity, the first criterion expects that each construct should have an AVE that is greater than or equal to 0.5. This means that, on average, each construct should explain at least half of the variance in its indicators. The AVE of each construct is reported in Appendix B. As can be seen, all the constructs were found to meet also this criterion.

In order to have satisfactory discriminant validity, the second criterion expects that each construct should have a square root of AVE greater than or equal to its absolute correlation with the other constructs in the model. This means that, on average, each construct should share at least an equal proportion of variance with its indicators than it shares with these other constructs. The correlations between the constructs (off-diagonal cells) and their square roots of AVEs (on-diagonal cells) are reported in Appendix D. As can be seen, there were three pairs of constructs that were not found to meet this criterion: self-direction–thought and self-direction–action, security–personal and security–societal, as well as benevolence–caring and benevolence–dependability. Because of this, we decided to modify our model by specifying these six first-order constructs as reflective measures of three more general second-order constructs: self-direction (measured by self-direction–thought and self-direction–action), security (measured security–personal and security–societal), and benevolence (measured by benevolence–caring and benevolence–dependability). The standardised loadings of the indicators of these three new constructs as well as their CRs and AVEs are reported in Appendix C. As can be seen, based on the aforementioned criteria, all their indicators were found to have satisfactory reliability and validity, and also the constructs themselves were found to have satisfactory reliability and

convergent validity. Finally, Appendix E reports the revised correlations between the constructs (off-diagonal cells) and their square roots of AVEs (on-diagonal cells). As can be seen, all the constructs were now found to meet the aforementioned criterion. Note that as suggested by Koufteros, Babbar, and Kaighobadi (2009), this examination excludes the six constructs that were previously found problematic. The discriminant validity of these first-order constructs can be considered to be of less importance because they act as reflective indicators of the second-order constructs and are, therefore, expected to be highly correlated. One also cannot, at the same time, aim to maximise the discriminant validity of the first-order constructs that act as reflective measures of a second-order construct and the convergent validity of that same second-order construct because the former would require the first-order constructs to be as weakly correlated as possible, whereas the latter would require the first-order constructs to be as strongly correlated as possible. Thus, Koufteros, Babbar, and Kaighobadi (2009) suggest that the examination and establishment of the convergent validity of the second-order constructs should take precedence.

4.3 Goodness-of-Fit

In accordance with the guidelines by Gefen, Rigdon, and Straub (2011), the goodness of-fit of the aforementioned modified model was assessed by using the χ^2 test of model fit and four alternative fit indices recommended in recent methodological literature (Hu & Bentler, 1999): the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Together, they assess the model fit comprehensively from both relative (CFI and TLI) and absolute (RMSEA and SRMR) perspectives (Hooper, Coughlan & Mullen, 2008). As it is typical for models estimated by using large sample sizes (Bentler & Bonett,1980), especially in the case of multivariate non-normality (Hooper, Coughlan & Mullen, 2008), the χ^2 test of model fit rejected the null hypotheses of the model fitting the data ($\chi^2(539) = 636.863$, $p = 0.002$). In contrast, the four fit indices (CFI = 0.988, TLI = 0.984, RMSEA = 0.018, and SRMR = 0.029) all indicated an acceptable fit by clearly meeting the cut-off criteria (CFI $\geq$ 0.95, TLI $\geq$ 0.95, RMSEA $\leq$ 0.06, and SRMR $\leq$ 0.08) suggested by Hu and Bentler (1999).

4.4 Estimation Results

The estimation results of the seven models in terms of the standardised regression coefficients and their statistical significance, the proportions of explained variance (R^2), as well as the goodness-of-fit statistics are reported in Table 3. As can be seen, also in this case, the χ^2 test of model fit rejected the null hypotheses of the models fitting the data, whereas the four fit indices all indicated the models to have an acceptable fit. In addition, because of the high number of explanatory variables in the regression equations, we examined the potential multicollinearity issues by using the estimated factor scores and the variance inflation factors (VIF). The VIFs were all clearly below ten, thus indicating no multicollinearity issues in any of the models.

Table 3: Estimation results of the models (* = p < 0.001, ** = p < 0.01, * = p < 0.05)**

	Total	Computer	Mobile	B2C	C2C	Domestic	Foreign
Controls							
Gender	**-0.156****	**-0.179*****	-0.051	**-0.171*****	-0.066	**-0.120****	**-0.152****
Age	-0.083	-0.104	-0.050	-0.080	-0.076	-0.018	-0.101
Income	**0.256****	**0.315*****	**0.133***	**0.288*****	0.124	**0.307*****	**0.145***
Values							
Self-direction	0.005	**0.156***	-0.161	0.026	-0.047	0.020	0.027
Stimulation	**0.275***	0.204	0.214	0.236	**0.267****	0.017	**0.341***
Hedonism	-0.137	-0.146	-0.056	-0.110	-0.153	**0.157***	-0.313
Achievement	-0.166	-0.226	-0.024	-0.173	-0.088	-0.082	-0.182
Power–dominance	0.124	0.081	0.101	0.105	0.118	0.043	0.118
Power–resources	0.072	**0.157***	-0.063	0.086	0.011	0.084	0.055
Face	0.033	-0.106	0.158	0.044	-0.006	-0.018	0.078
Security	0.120	-0.005	0.194	0.102	0.123	-0.126	**0.273***
Tradition	-0.117	-0.043	-0.128	-0.122	-0.062	-0.061	-0.130
Conformity–rules	0.072	0.119	-0.022	0.080	0.026	**0.176***	-0.039

Conformity–interpersonal	0.097	**0.192***	-0.043	0.088	0.082	0.131	0.015
Humility	**-0.140***	**-0.128***	-0.077	**-0.143***	-0.081	-0.107	-0.117
Benevolence	0.124	0.095	0.092	0.127	0.074	0.110	0.090
Universalism–concern	-0.179	0.020	**-0.281***	-0.197	-0.063	-0.083	-0.226
Universalism–nature	-0.004	-0.082	0.066	-0.001	-0.017	-0.031	0.033
Universalism–tolerance	-0.054	-0.178	0.100	-0.030	-0.096	-0.007	-0.040
R^2							
Controls	8.6 %	11.8 %	2.1 %	10.9 %	1.7 %	10.6 %	4.1 %
Values	8.9 %	7.0 %	10.3 %	8.2 %	5.8 %	5.5 %	14.8 %
Total	17.4 %	18.8 %	12.4 %	19.1 %	7.5 %	16.2 %	19.0 %
Goodness-of-fit							
χ^2	805.799	816.062	817.811	802.787	810.299	804.924	809.023
df	627	627	627	627	627	627	627
p	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
CFI	0.980	0.979	0.978	0.980	0.979	0.980	0.979
TLI	0.972	0.971	0.970	0.973	0.971	0.972	0.971
RMSEA	0.022	0.023	0.023	0.022	0.023	0.022	0.023
SRMR	0.030	0.030	0.030	0.030	0.030	0.030	0.030

In terms of control variables, gender was found to have statistically significant effects on total online shopping spending as well as the spending on orders made with traditional computers, from businesses, and from domestic and foreign online stores. All these effects were negative, meaning that women spent less than men. Age was found to have no statistically significant effects, whereas income was found to have statistically significant effects on total online shopping spending as well as the spending on orders made with traditional computers and mobile devices, from businesses, and from domestic and foreign online stores. All these effects were positive, meaning that those with higher income also spent more. The proportions of explained variance by the control variables ranged

from about 1.7 % in the case of orders made from other consumers to about 11.8 % in the case of orders made with traditional computers.

In terms of individual values, we found nine out of the 16 values to have statistically significant effects on online shopping spending. First, total online shopping spending was found to be affected positively by stimulation and negatively by humility. In turn, the spending on orders made with traditional computers was found to be affected positively by self-direction, power–resources, and conformity–interpersonal and negatively by humility. In contrast, the spending on orders made with mobile devices was found to be affected negatively by universalism–concern. The spending on orders made from businesses was found to be affected negatively by humility, whereas the spending on orders made from other consumers was found to be affected positively by stimulation. Finally, the spending on orders made from domestic online stores was found to be affected positively by hedonism and conformity–rules, whereas the spending on orders made from foreign online stores was found to be affected positively by stimulation and security. The proportions of explained variance by the values ranged from about 5.5 % in the case of orders made from domestic online stores to about 14.8 % in the case of orders made from foreign online stores.

5 Discussion and Conclusions

In this study, we examined the effects of individual values on both total online shopping spending and the specific types of online shopping spending in terms of orders made (1) with traditional computers versus mobile devices, (2) from businesses versus other consumers, and (3) from domestic versus foreign online stores. The study focused on 16 values that were based on the refined theory of basic individual values by Schwartz et al. (2012). From a purely statistical perspective, these values were found to act as relatively weak antecedents of online shopping spending. For example, the values were found to explain only a small proportion of the observed variance in both total online shopping spending and the specific types of online shopping spending, with only nine out of the 16 values having statistically significant effects. However, from a more substantial perspective, the role of the values as antecedents of online shopping spending can still be considered as surprisingly strong. After all, one must keep in mind that human behaviour is always a challenging phenomenon to explain or predict,

and the examined values were all very general in nature and by no means specific to the context of online shopping. Values are also typically considered to affect online shopping behaviour through multiple mediating constructs, such as attitude and intention (e.g., Jayawardhena, 2004), which limits their explanatory or predictive power.

The two individual values that were found to act as the most important antecedents of online shopping spending were stimulation and humility. These were the only two values that were found to have a statistically significant effect on not only on a specific type of online shopping spending but also on total online shopping spending. The effect of stimulation on total online shopping spending was found to be positive. This finding is in line with prior research, in which a higher optimal stimulation level (i.e., the personally preferred level of stimulation) has been found to be associated with a higher level of consumer innovativeness (Raju, 1980; Steenkamp & Baumgartner, 1992) and consumer innovativeness, in turn, has been found to have a positive effect on the adoption of online shopping (Citrin et al., 2000). More specifically, stimulation was also found to increase the spending on orders made from foreign online stores and from other consumers. Also these findings are largely in line with prior research, in which a higher optimal stimulation level has been found to be associated not only with a higher level of consumer innovativeness but also with a higher level of risk-taking (Raju, 1980; Steenkamp & Baumgartner, 1992). This tendency for risk-taking, in turn, is required especially when ordering from foreign online stores and other consumers, which is why these two specific types of online spending are most strongly affected by stimulation. In contrast, the effect of humility on total online shopping spending was found to be negative. This finding is not particularly surprising when considering that consumers who value humility and modesty are likely to avoid luxury or conspicuous consumption, which causes them to spend less both online and offline. More specifically, humility was also found to decrease the spending on orders made with computers and from businesses. Also these findings are not surprising when considering that luxury goods are most commonly purchased from businesses rather than other consumers. Respectively, because of the higher price, consumers typically spend considerable amounts of time on information search and the evaluation of alternatives when making these purchase decisions, which is why the purchases are more likely to be made with traditional computers rather than with mobile

devices. Thus, when the luxury or conspicuous consumption is reduced, it has the strongest effects on these two specific types of online spending.

The remaining seven individual values with statistically significant effects were found to affect only one specific type of online shopping spending. For example, hedonism was found to increase the spending on orders made from domestic online stores and decrease the spending on orders made from foreign online stores, although this latter effect was not quite statistically significant. This would seem to suggest that whereas shopping in domestic online stores is perceived as a pleasurable activity by many consumers, the opposite is often true for shopping in foreign online stores. In turn, universalism–concern was found to decrease the spending on orders made with mobile devices. This likely due to its strong associations with consumption movements like sustainable consumption (Thøgersen & Ölander, 2002), ethical consumption (Shaw et al., 2005), conscious consumption (Pepper, Jackson & Uzzell, 2009), and fair-trade consumption (Doran, 2009), which all highlight responsible consumer behaviour instead of impulsive purchasing that often characterises mobile online shopping (Schwartz, 2012; Lee, Park & Jun, 2014; Zheng et al., 2019). In contrast, the spending on orders made with mobile devices seemed to be slightly increased by the motivation of maintaining one's face, although this effect was not quite statistically significant. This finding may be explained by the fact that especially younger consumers often see mobile online shopping as a somewhat trendier way to shop online in comparison to traditional online shopping. Thus, if one is motivated to maintain a trendy public image, one is likely to favour this specific type of online shopping spending. The same logic, although inversely, may also be used to explain the finding that self-direction was found to increase the spending on orders made with traditional computers. That is, if the motivation to maintain one's face causes consumers to spend more on orders made with mobile devices, then the freedom from such social pressure is likely to reduce this tendency or even result in an opposite tendency of spending more on orders made with traditional computers. In addition, the spending on orders made with traditional computers was found to be increased by power–resources, which may simply be due to the fact that consumers with more materialistic motivations often have more materialistic possessions, including also a traditional computer that is required for this specific type of online shopping spending. Finally, we found security to increase the spending on orders made from foreign online stores as well as conformity to increase the spending on orders made from

domestic online stores and with computers. Of these, the latter findings are not particularly surprising because making orders with traditional computers from domestic online stores represents a very conservative way of shopping online, which is likely to be more common among consumers who foster conservative values like conformity. In contrast, the former finding can be considered a bit more surprising but is perhaps explainable by the fact that consumers who value security are also likely to be more security conscious and aware of the risks that relate to making orders in foreign online stores. This awareness, in turn, may help them to mitigate these risks and increase this specific type of online shopping spending.

In addition to providing the aforementioned theoretical insights, the findings of this study also have important practical implications for the managers of online stores in terms of promoting online spending. For example, on one hand, the findings highlight the fact that especially for foreign online stores and online services that facilitate C2C commerce it is important to lower the level of perceived risk associated with shopping in them in order to promote their usage also among consumers with lower optimal stimulation levels and lower risk-taking tendencies. This lower level of perceived risk is also likely to promote the level of perceived hedonic value associated with shopping in them, thus causing them to be more actively used also by consumers with more hedonic shopping tendencies. On the other hand, the findings highlight the fact that online stores should be cautious in terms of employing marketing practices that promote impulse purchasing and other kinds of irresponsible consumer behaviour. Although these practices may have a positive effect on their sales among some consumers, their effect on sales is likely to be negative especially among consumers who value universalism and consumption movements like sustainable, ethical, conscious, and fair-trade consumption, which all seem to be increasing rather than decreasing in popularity.

6 Limitations and Future Research

We see this study to have two main limitations. First, we collected the data for this study only from Finnish consumers, and our sample was also dominated by women and younger consumers. This obviously limits the generalisability of our findings and calls for future replications of this study in other countries and by using more balanced samples. Second, our measurements of online shopping

spending were based on self-reported retrospective assessments, which is likely to result some inaccuracies. Thus, in future studies, it is important to aim at improving the measurement accuracy through methodological advancements. For example, one alternative could be to ask the study participants to keep a diary of their online shopping behaviours and use these diaries as the data source of the study. Of course, in future studies, it would also be interesting to focus on other specific types of online shopping spending than the ones that were examined in this study. One example of this would be to consider the context in which the orders were made (e.g., while at home or while on the go).

Appendix A: Item Wordings and Descriptive Statistics

Item	Missing	Mean	SD
Self-direction–thought (SDT)			
SDT1 It is important to me to form my own opinions.	0.2 %	4.392	0.752
SDT2 Thinking independently and drawing my own conclusions is important to me.	0.2 %	4.374	0.725
Self-direction–action (SDA)			
SDA1 It is important to me to make my own decisions about my life.	0.2 %	4.496	0.696
SDA2 The freedom to choose what I do is important to me.	0.4 %	4.497	0.684
Stimulation (STI)			
STI1 I am always looking for different kinds of new things to do.	0.5 %	3.436	1.053
STI2 It is important to me to have all sorts of new experiences.	1.4 %	3.833	0.963
Hedonism (HED)			
HED1 Having a good time is important to me.	0.9 %	4.084	0.910
HED2 Enjoying life's pleasures is important to me.	0.5 %	4.372	0.798
Achievement (ACH)			
ACH1 It is important to me to be ambitious.	0.4 %	3.506	1.096
ACH2 It is important to me to be successful and others to admire my achievements.	0.4 %	3.522	1.100
Power–dominance (PD)			
PD1 I want to be in a position where people do what I say.	0.4 %	2.588	1.107
PD2 It is important to me to be the one who tells others what to do.	0.2 %	2.642	1.113
Power–resources (PR)			
PR1 The power and possibilities that money can bring are important to me.	0.2 %	2.949	1.198
PR2 Being wealthy is important to me.	0.4 %	3.041	1.143
Face (FAC)			
FAC1 It is important to me that no one should ever shame me.	0.4 %	3.742	1.072
FAC2 It is important to me not to lose my face in the eyes of others.	1.1 %	3.717	1.067
Security–personal (SP)			
SP1 My personal security is important to me.	0.7 %	4.488	0.735
SP2 It is important to me to live in secure surroundings.	0.2 %	4.516	0.721
Security–societal (SS)			
SS1 It is important to me that my country protect itself against all threats.	0.9 %	4.473	0.702
SS2 Having order and stability in the society is important to me.	1.4 %	4.334	0.818
Tradition (TRA)			
TRA1 Following the customs of my society is important to me.	1.2 %	3.509	1.036
TRA2 It is important to me to maintain the traditions of my society.	1.6 %	3.385	1.089
Conformity–rules (CR)			
CR1 It is important to me to follow rules even when no one is watching.	0.4 %	3.895	1.051

CR2 Being law-abiding and obeying all the laws is important to me.	0.2 %	3.998	1.019
Conformity–interpersonal (CI)			
CI1 It is important to me to avoid annoying or upsetting other people.	0.4 %	3.657	1.115
CI2 It is important to me to be tactful and avoid irritating other people.	1.1 %	3.773	1.014
Humility (HUM)			
HUM1 It is important to me to be humble and inconspicuous.	0.4 %	2.897	1.140
HUM2 It is important to me to be modest and not to draw attention to myself.	0.7 %	3.036	1.180
Benevolence–caring (BC)			
BC1 It is important to me to help the people dear to me.	0.0 %	4.573	0.695
BC2 Caring for the well-being of the people I am close to is important to me.	0.4 %	4.512	0.734
Benevolence–dependability (BD)			
BD1 I go out of my way to be a dependable and trustworthy friend.	0.2 %	4.606	0.703
BD2 I want the people who are close to me to be able to rely on me completely.	0.2 %	4.631	0.668
Universalism–concern (UC)			
UC1 It is important to me that every person in the world has equal opportunities in life.	0.9 %	4.200	0.926
UC2 It is important to me that also the society's weakest members are treated justly.	0.4 %	4.433	0.748
Universalism–nature (UN)			
UN1 It is important to me to care for the nature and the environment.	0.4 %	4.302	0.865
UN2 Protecting the nature from pollution or other threats is important to me.	0.5 %	4.258	0.867
Universalism–tolerance (UT)			
UT1 It is important to me to listen to people who are different from me.	0.4 %	4.147	0.827
UT2 Even when I disagree with people, it is important to me to understand them.	0.2 %	4.094	0.855

Appendix B: First-Order Constructs and Their Indicators

Construct or indicator	Before modifications				After modifications			
	CR	**AVE**	**Loading**	**Residual**	**CR**	**AVE**	**Loading**	**Residual**
Self-direction–thought (SDT)	0.740	0.588			0.740	0.588		
SDT1			0.819***	0.329***			0.816***	0.334***
SDT2			0.711***	0.494***			0.714***	0.491***
Self-direction–action (SDA)	0.725	0.569			0.726	0.569		
SDA1			0.748***	0.440***			0.749***	0.439***
SDA2			0.760***	0.422***			0.760***	0.423***
Stimulation (STI)	0.695	0.533			0.695	0.533		

STI1			0.679***	0.539***			0.678***	0.541***
STI2			0.778***	0.394***			0.779***	0.393***
Hedonism (HED)	0.812	0.684			0.811	0.683		
HED1			0.764***	0.416***			0.767***	0.412***
HED2			0.886***	0.215***			0.882***	0.221***
Achievement (ACH)	0.785	0.646			0.786	0.647		
ACH1			0.806***	0.350***			0.807***	0.349***
ACH2			0.802***	0.356***			0.802***	0.358***
Power–dominance (PD)	0.807	0.677			0.808	0.678		
PD1			0.859***	0.261***			0.856***	0.267***
PD2			0.785***	0.383***			0.789***	0.378***
Power–resources (PR)	0.812	0.684			0.812	0.684		
PR1			0.791***	0.375***			0.790***	0.376***
PR2			0.861***	0.258***			0.862***	0.257***
Face (FAC)	0.863	0.760			0.864	0.760		
FAC1			0.878***	0.229***			0.879***	0.227***
FAC2			0.865***	0.251***			0.865***	0.253***
Security–personal (SP)	0.764	0.619			0.765	0.620		
SP1			0.747***	0.443***			0.743***	0.448***
SP2			0.825***	0.320***			0.829***	0.313***
Security–societal (SS)	0.699	0.538			0.700	0.539		
SS1			0.772***	0.405***			0.780***	0.391***
SS2			0.693***	0.519***			0.686***	0.529***
Tradition (TRA)	0.771	0.628			0.772	0.630		
TRA1			0.834***	0.304***			0.841***	0.293***
TRA2			0.749***	0.439***			0.743***	0.447***
Conformity–rules (CR)	0.826	0.704			0.826	0.704		
COR1			0.805***	0.352***			0.806***	0.351***
COR2			0.872***	0.240***			0.871***	0.241***
Conformity–interpersonal (CI)	0.827	0.705			0.826	0.704		
COI1			0.828***	0.315***			0.828***	0.314***
COI2			0.851***	0.277***			0.850***	0.278***
Humility (HUM)	0.851	0.741			0.851	0.741		
HUM1			0.885***	0.217***			0.884***	0.219***
HUM2			0.836***	0.301***			0.837***	0.299***
Benevolence–caring (BC)	0.795	0.660			0.795	0.660		
BC1			0.825***	0.320***			0.828***	0.314***
BC2			0.799***	0.361***			0.796***	0.367***
Benevolence–dependability (BD)	0.794	0.658			0.794	0.658		
BD1			0.797***	0.366***			0.793***	0.371***
BD2			0.825***	0.319***			0.829***	0.313***

Universalism–concern (UC)	0.753	0.604			0.754	0.605		
UC1			0.775***	0.399***			0.774***	0.402***
UC2			0.779***	0.392***			0.781***	0.390***
Universalism–nature (UN)	0.883	0.791			0.884	0.792		
UN1			0.858***	0.263***			0.860***	0.261***
UN2			0.920***	0.153*			0.919***	0.156*
Universalism–tolerance (UT)	0.765	0.619			0.765	0.619		
UT1			0.827***	0.317***			0.827***	0.316***
UT2			0.745***	0.445***			0.745***	0.445***

*** = p < 0.001, ** = p < 0.01, * = p < 0.05

Appendix C: Second-Order Constructs and Their Indicators

Construct or indicator	CR	AVE	Loading	Residual
Self-direction (SD)	0.904	0.825		
Self-direction–thought (SDT)			0.953***	0.092
Self-direction–action (SDA)			0.861***	0.259***
Security (SEC)	0.988	0.976		
Security–personal (SP)			0.984***	0.032
Security–societal (SS)			0.992***	0.015
Benevolence (BEN)	0.924	0.858		
Benevolence–caring (BC)			0.901***	0.188**
Benevolence–dependability (BD)			0.951***	0.095

*** = p < 0.001, ** = p < 0.01, * = p < 0.05

Appendix D: Construct Correlations and Square Roots of AVEs Before Modifications

	SDT	SDA	STI	HED	ACH	PD	PR	FAC	SP	SS	TRA	CR	CI	HUM	BC	BD	UC	UN	UT
SDT	0.767																		
SDA	0.818	0.754																	
STI	0.293	0.380	0.730																
HED	0.401	0.469	0.590	0.827															
ACH	0.239	0.298	0.499	0.254	0.804														
PD	0.061	0.101	0.318	0.027	0.621	0.827													
PR	0.094	0.160	0.270	0.204	0.653	0.522	0.823												
FAC	0.152	0.232	0.085	0.199	0.341	0.120	0.277	0.872											
SP	0.549	0.484	0.125	0.438	0.258	0.018	0.204	0.450	0.787										
SS	0.580	0.489	0.140	0.370	0.248	0.065	0.179	0.470	0.979	0.734									
TRA	0.073	0.143	0.128	0.225	0.241	0.131	0.192	0.480	0.471	0.533	0.793								
CR	0.256	0.222	0.009	0.163	0.275	0.039	0.122	0.404	0.620	0.670	0.579	0.839							
CI	0.080	0.144	0.038	0.181	0.192	-0.112	0.063	0.597	0.435	0.450	0.493	0.558	0.840						
HUM	-0.052	-0.006	0.016	0.011	-0.029	-0.022	0.052	0.397	0.162	0.218	0.381	0.374	0.509	0.861					
BC	0.514	0.473	0.316	0.413	0.223	-0.066	0.036	0.294	0.698	0.649	0.394	0.460	0.347	0.119	0.811				
BD	0.577	0.484	0.266	0.517	0.244	-0.100	0.062	0.320	0.673	0.649	0.363	0.501	0.374	0.139	0.858	0.812			
UC	0.463	0.480	0.343	0.468	0.137	-0.131	-0.077	0.213	0.452	0.482	0.194	0.332	0.363	0.119	0.589	0.626	0.777		
UN	0.369	0.375	0.273	0.329	0.047	-0.019	-0.025	0.169	0.421	0.430	0.177	0.270	0.232	0.050	0.480	0.440	0.520	0.890	
UT	0.497	0.431	0.423	0.451	0.261	-0.048	0.004	0.209	0.416	0.440	0.296	0.371	0.360	0.168	0.566	0.660	0.700	0.400	0.787

Appendix E: Construct Correlations and Square Roots of AVEs After Modifications

	SD	STI	HED	ACH	PD	PR	FAC	SEC	TRA	CR	CI	HUM	BEN	UC	UN	UT
SD	0.908															
STI	0.356	0.730														
HED	0.464	0.593	0.827													
ACH	0.284	0.499	0.255	0.805												
PD	0.083	0.318	0.027	0.622	0.827											
PR	0.129	0.270	0.205	0.652	0.522	0.823										
FAC	0.198	0.086	0.200	0.341	0.121	0.277	0.872									
SEC	0.588	0.134	0.413	0.256	0.039	0.195	0.464	0.988								
TRA	0.107	0.127	0.224	0.242	0.131	0.192	0.480	0.502	0.794							
CR	0.264	0.009	0.162	0.275	0.040	0.122	0.404	0.648	0.579	0.839						
CI	0.113	0.038	0.181	0.192	-0.112	0.063	0.597	0.446	0.493	0.558	0.839					
HUM	-0.038	0.016	0.010	-0.029	-0.022	0.052	0.397	0.188	0.380	0.374	0.509	0.861				
BEN	0.612	0.310	0.508	0.252	-0.091	0.054	0.333	0.727	0.403	0.520	0.389	0.141	0.926			
UC	0.512	0.344	0.469	0.137	-0.131	-0.077	0.213	0.471	0.194	0.332	0.363	0.119	0.657	0.778		
UN	0.404	0.274	0.330	0.046	-0.019	-0.025	0.170	0.429	0.176	0.270	0.233	0.050	0.491	0.520	0.890	
UT	0.514	0.423	0.451	0.261	-0.047	0.004	0.209	0.431	0.296	0.371	0.360	0.168	0.666	0.700	0.401	0.787

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