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The Effects of Positive and Negative Emotions During Online Shopping Episodes on Consumer Satisfaction, Repurchase Intention, and Recommendation Intention

MARKUS MAKKONEN, JANNE RIEKKINEN, LAURI FRANK & JARI JUSSILA

Abstract The aim of this study is to examine the emotions that consumers experience during their online shopping episodes as well as their effects on consumer satisfaction and two types of post-purchase behavioural intentions: repurchase and recommendation intentions. By hypothesising a research model and testing it with the data from 1,786 Finnish online shoppers, which was collected in co-operation with 18 Finnish online stores between September 2018 and December 2018 and is analysed by using structural equation modelling (SEM), the study makes several interesting findings. First, we find positive emotions to have stronger effects in comparison to negative emotions. Second, we also find that whereas the effects of negative emotions on repurchase and recommendation intentions are completely mediated by satisfaction, positive emotions affect them not only indirectly via satisfaction but also directly. Finally, we discuss the implications of these findings for the Turku managers of online stores.

Keywords: • Online Shopping • Consumer Emotions • Consumer Satisfaction • Repurchase Intention • Recommendation Intention • Online Survey • Finland •

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1 Introduction

In the traditional offline context, the emotions that consumers experience have been identified as important antecedents of consumer satisfaction and post-purchase behaviours, such as repurchase, recommendation, complaint, and word-of-mouth behaviour (Westbrook, 1987; Oliver & Swan, 1989; Westbrook & Oliver, 1991; Mano & Oliver, 1993; Oliver, 1993; Mooradian & Olver, 1997). However, in the online context, the emotions that consumers experience during their online shopping episodes and their effects on consumer satisfaction and post-purchase behaviours remain much more poorly understood. In part, this has been due to the tendency of both information systems (IS) and marketing research to focus more on the rational rather than emotional aspects of consumer behaviour (Bagozzi, Gopinath & Nyer, 1999; Beaudry & Pinsonneault, 2010). In part, it has also been due to some severe shortcomings in the prior studies on the topic. On one hand, the prior studies have typically focused on examining the effects of emotions on either satisfaction or some specific type of post-purchase behaviour only one construct at a time instead of considering also the effects that these constructs may have on each other. This has left us unaware of the exact mechanisms how emotions affect consumer behaviour in the online context. For example, do emotions affect post-purchase behaviours only directly or also indirectly via satisfaction? Or does satisfaction act as a central construct that mediates all the effects of emotions on post-purchase behaviours, similar to what has been suggested in the traditional offline context (e.g., Mooradian & Olver, 1997)? On the other hand, the prior studies have also typically focused on a very small subset of emotions in comparison to the full set of emotions that have been suggested as relevant in the consumption context (e.g., Richins, 1997; Laros & Steenkamp, 2005). This has partly been due to research design, such as the deliberate decisions by Childers et al. (2001) as well as Koufaris (2002) to focus only on the perceived enjoyment of online shopping in their studies. However, it has also partly been due to poor operationalisations of the research constructs. An example of this is found in the studies by Kuo and Wu (2012) as well as Pappas et al. (2014), in which the measures of positive emotions focused only on feeling happy, warm, and valued, whereas the measures of negative emotions focused only on feeling angry and upset as well as being in a bad mood.

In this study, our objective is to address the aforementioned shortcomings by hypothesising and testing a research model that both (1) examines the effects of emotions on consumer satisfaction and post-purchase behavioural intentions while also considering the effects of the outcome constructs on each other and (2) measures emotions by focusing not only a small sub-set of emotions but the full set of emotions that have been found relevant in the consumption context. Of the post-purchase behavioural intentions, we concentrate on two types of intentions that have been commonly considered as central dimensions of behavioural customer loyalty: repurchase and recommendation intentions. The data for testing the research model comes from 1,786 Finnish online shoppers, which was collected in co-operation with 18 Finnish online stores between September 2018 and December 2018 and is analysed by using structural equation modelling (SEM).

The paper consists of six sections. After this introductory section, we will next describe the research model of the study in Section 2. This is followed by a brief 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 potential paths of future research in Section 6.

2 Research Model

There are numerous frameworks that have aimed to identify the basic emotions that are common to all humans (e.g., Ekman & Friesen, 1971; Izard, 1977; Russell & Mehrabian, 1977; Plutchik, 1980; Russell, 1980; Roseman, 1984; Roseman, Antoniou & Jose, 1996). In this study, we base our research model on two such frameworks that have been suggested specifically for the consumption context. The first of these frameworks is the consumption emotions set (CES) by Richins (1997), which identifies 16 basic emotions and defines a set of descriptors for measuring them. These emotions and their descriptors (in parenthesis) are anger (frustrated, angry, and irritated), discontent (unfulfilled and discontented), worry (nervous, worried, and tense), sadness (depressed, sad, and miserable), fear (scared, afraid, and panicky), shame (embarrassed, ashamed, and humiliated), envy (envious and jealous), loneliness (lonely and homesick), romantic love (sexy, romantic, and passionate), love (loving, sentimental, and warm-hearted),

peacefulness (calm and peaceful), contentment (contented and fulfilled), optimistic (optimistic, encouraged, and hopeful), joy (happy, pleased, and joyful), excitement (excited, thrilled, and enthusiastic), and surprise (surprised, amazed, and astonished). The second framework is the hierarchical framework by Laros and Steenkamp (2005), which is based on CES, but excludes some basic emotions which may not be so relevant in all consumption contexts (e.g., loneliness, love, and romantic love). In addition, the framework also defines a hierarchical structure for emotions that consists of three levels. At the superordinate level, the emotions are differentiated into positive affect and negative affect. The two affects, in turn, are measured by six basic emotions at the intermediate level, which are contentment and happiness in the case of positive affect and anger, fear, sadness, and shame in the case of negative affect. Finally, the six basic emotions are measured by 33 specific emotions or emotion words at the subordinate level, which are based on the descriptors of CES.

Of these two frameworks, we base our research models mainly on the hierarchical framework by Laros and Steenkamp (2005) but modify it slightly based on the CES by Richins (1997). First, the hierarchical framework measures contentment with descriptors that are used to measure both contentment (contented and fulfilled) and peacefulness (peaceful) in CES. Thus, in our research model, we decompose this construct into two different constructs: contentment and peacefulness. Second, the hierarchical framework measures happiness with descriptors that are used to measure optimism (optimistic, encouraged, and hopeful), joy (happy, pleased, joyful), and excitement (excited, thrilled, enthusiastic) in CES. Thus, in our research model, we decompose this construct into three different constructs: optimism, joy, and excitement.

The final research model after the aforementioned modifications is illustrated in Figure 1. As can be seen, it consists of five first-order positive emotion constructs (contentment, peacefulness, optimism, joy, and excitement) and four first-order negative emotion constructs (anger, fear, sadness, and shame), of which the former act as reflective measures of the second-order positive emotions construct and the latter act as reflective measures of the second-order negative emotions construct. The positive and negative emotions, in turn, are hypothesised to have direct effects on satisfaction as well as repurchase and recommendation intentions. In addition, they are also hypothesised to have indirect effects on repurchase and recommendation intentions via satisfaction,

which has been found to act as an antecedent of these intentions in the prior studies by Anderson and Sullivan (1993), Anderson (1998), as well as Mittal and Kamakura (2001).

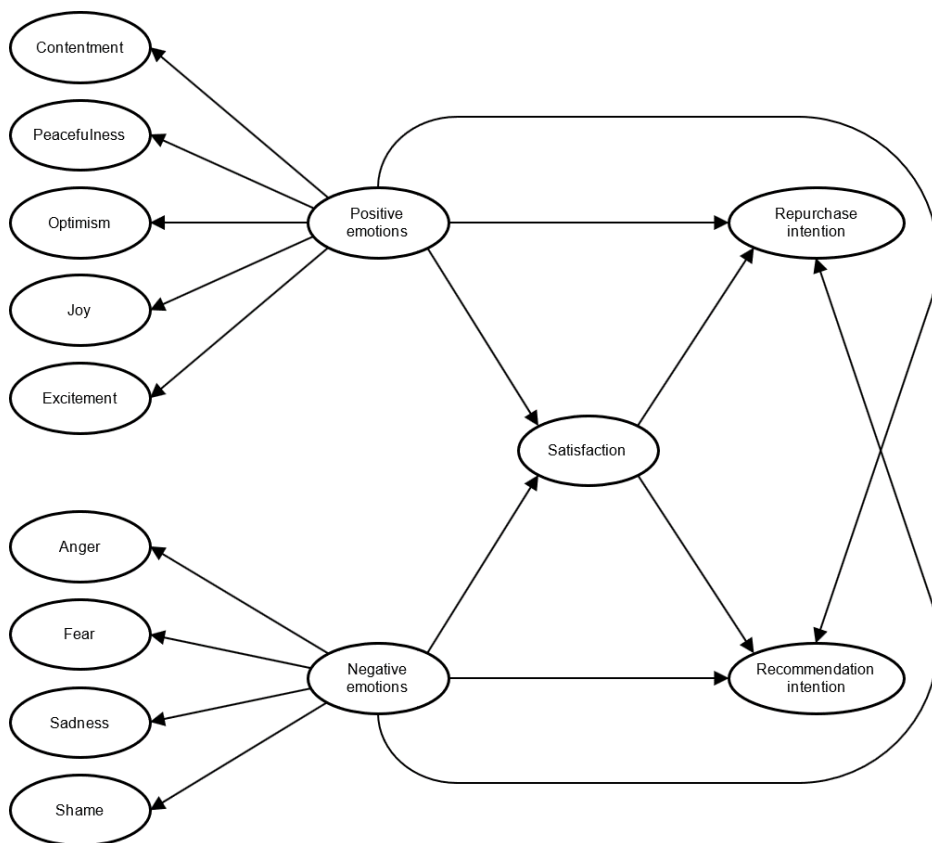


Figure 1: Research model

3 Methodology

The data for the study was collected from Finnish online shoppers via an online survey in co-operation with 18 Finnish online stores between September 2018 and December 2018. The stores, which were mainly focused on groceries and consumables, clothing, cosmetics, and furnishings, added a link to the survey on the webpage that was shown to their customers after a successful order. In the survey, the respondents were first inquired about their gender and age as well as

how often do they shop online, what they had just ordered, and how many times they had previously shopped in that online store. After this, the respondents were inquired about the emotions that they had experienced during the online shopping episode that had just ended as well as about their satisfaction, repurchase intention, and recommendation intention. The nine first-order emotion constructs of our research model were measured reflectively by using a set of 28 emotion words (e.g., contented or angry) that were taken from the hierarchical framework by Laros and Steenkamp (2005). The respondents rated all these emotions with a scale ranging from one to seven, in which one meant that they had not experienced that specific emotion at all during the online shopping episode and seven meant that they had experienced that specific emotion very strongly during the online shopping episode. Satisfaction as well as repurchase and recommendation intentions were measured reflectively by three items each. The items measuring satisfaction were taken from the American Customer Satisfaction Index (ACSI – Fornell et al., 1996) and the Extended Performance Satisfaction Index (EPSI – Selivanova et al., 2002), which are both based on the Swedish Customer Satisfaction Barometer (SCSB – Fornell, 1992) and have also been previously applied to the online setting by Hsu (2008). Together, the items measure satisfaction in three different dimensions: (1) overall satisfaction, (2) expectancy (dis)confirmation (i.e., the performance that falls short of or exceeds expectations), and (3) the performance versus the customer's hypothetical ideal product or service. The measurement scale of these items ranged from one to seven, in which one meant extreme dissatisfaction and seven meant extreme satisfaction. In turn, the items measuring repurchase and recommendation intentions were adapted from the studies by Khalifa and Liu (2007) as well as Zeithaml, Berry, and Parasuraman (1996). The measurement scale of these items was the traditional seven-point Likert scale. Responding to all the aforementioned measurement items was non-mandatory, meaning that also missing values were possible. The wordings of all the measurement items are reported in Appendices A and B. In addition to above, the respondents were also asked to tell in their own words about the causes of their experienced emotions during the online shopping episodes. However, these responses are not utilised in this particular study.

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.

4 Results

The online survey was completed by 1,803 respondents. However, 17 of these respondents had to be dropped from the study due to invalid or missing data, resulting in a sample size of 1,786 responses to be used in the actual analyses. The descriptive statistics of this sample are reported in Table 1. As can be seen, most of the respondents were women, which can be explained by the fact that many of the co-operating online stores were more targeted to women than to men. The age of the respondents ranged from 18 to 80 years, with a mean of 39.9 years and a standard deviation of 13.0 years. On average, most of the respondents (79.1 %) shopped online at least monthly, and most of them (66.9 %) also had previously shopped in the online store that they were inquired about in the survey.

The descriptive statistics of the measurement items in terms of the percentages of missing data, means, and standard deviations (SD) are reported in Appendices A and B. As can be, the respondents reported having experienced a wide variety of emotions during their online shopping episodes, but the positive emotions were clearly experienced more strongly than the negative emotions. The respondents also reported high satisfaction as well as strong repurchase and recommendation intentions. This can be explained by the fact that the data was collected only on online shopping episodes that ended in a successful order. The percentages of missing data were all relatively low, thus indicating that all the measured emotions were relevant for the online shopping episodes and that the respondents also had no difficulties in rating their satisfaction as well as repurchase and recommendation intentions.

Table 1: Descriptive sample statistics (N = 1,786)

	N	%
Gender		
Man	282	15.8
Woman	1,504	84.2
Age		
Under 30 years	441	24.7
30–39 years	507	28.4
40–49 years	393	22.0
50–59 years	288	16.1
60 years or over	157	8.8
On average, how often do you shop online?		
Daily	23	1.3
Weekly	457	25.6
Monthly	932	52.2
Yearly	355	19.9
Less than yearly	19	1.1
How many times have you shopped in this online store?		
Never	592	33.1
1–3 times	647	36.2
4–10 times	412	23.1
Over 10 times	135	7.6

In the following four sub-sections, we report the results of estimating the research model by concentrating first on the reliability and validity of its indicators and constructs and finally on the goodness-of-fit of the estimated model and the actual estimation results.

4.1 Indicator Reliability and Validity

Indicator reliabilities and validities were evaluated by using the standardised loadings of the indicators, which are reported in Appendices A and B for the first-order constructs and in Appendix C for the second-order constructs. 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. As can be seen from Appendix A, in the case of the first-order constructs, all the indicators of the satisfaction, repurchase intention, and recommendation intention constructs as well as the five positive emotion constructs were found to meet this criterion. In contrast, the four negative emotion constructs each had indicators that did not meet the criterion. As a consequence, we decided to drop the two indicators with the lowest loadings, of which one was related to feeling guilty and measured the sadness construct, whereas the other was related to feeling humiliated and measured the shame construct. In addition, we decided to decompose the anger construct into two distinct constructs: anger and frustration. Of these, the more intense anger construct was defined to be measured by the indicators related to feeling angry, annoyed, and irritated, whereas the less intense frustration construct was defined to be measured by the indicators related to feeling frustrated, discontented, and disappointed. This decomposition is supported by the emotions system by Roseman (1984) as well as its more recent revision by Roseman, Antoniou, and Jose (1996), which both identify anger and frustration as two distinct emotions. In addition, the prior studies by Éthier et al. (2006, 2008) on emotions during online shopping episodes have concentrated on frustration instead of anger, thus suggesting that frustration may actually be a more relevant emotion than anger in this context. As can be seen from Appendix B, after these modifications, all the indicators of the new frustration construct now met the criterion, whereas the other four negative emotion constructs still had indicators that did not meet it. However, all these indicators now had standardised loadings that were statistically significant and greater than or equal to 0.6, which has been suggested as a slightly less strict criterion in methodological literature (Bagozzi & Yi, 1988). Thus, we considered all the remaining indicators of the first-order construct to

have satisfactory reliability and validity. As can be seen from Appendix C, in the case of the second-order constructs, all the indicators were found to meet also the stricter criterion after the aforementioned modifications. Thus, their reliability and validity can also be considered as satisfactory.

4.2 Construct Reliability and Validity

Construct reliabilities were evaluated by using the composite reliabilities (CR) of the constructs (Fornell & Larcker, 1981), which are commonly expected to be greater than or equal to 0.6 (Bagozzi & Yi, 1988). In turn, construct validities were evaluated by examining the convergent and discriminant validity of the constructs by using 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 exhibit satisfactory convergent validity, the first criterion expects that each construct should have an AVE of at least 0.5, meaning that, on average, each construct should explain at least half of the variance in its indicators. Respectively, in order to exhibit 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, meaning 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 CR and AVE of each construct after the aforementioned modifications are reported in Appendix B for the first-order constructs and in Appendix C for the second-order constructs. As can be seen, all the first-order and second-order constructs were found to have satisfactory reliability. Most the first-order and second-order constructs were also found to have satisfactory convergent validity, with the exception of fear, sadness, and shame. However, we still decided to keep these three constructs in the model because dropping them would have limited the negative emotions only to anger and frustration, thus being in conflict with our original objective of measuring the full set of emotions that have been found relevant in the consumption context. In addition, the AVEs of these three constructs were all found to be greater than 0.4, thus being relatively close to the threshold of 0.5 and also in line with the AVEs that the emotion constructs in the original hierarchical framework by Laros and Steenkamp (2005) were found

to have. For example, based on the standardised loadings reported in their paper, the sadness construct in the original hierarchical framework can be calculated to have an AVE of about 0.426.

As suggested by Koufteros, Babbar, and Kaighobadi (2009), the examination of discriminant validity concentrated on the satisfaction, repurchase intention, and recommendation intention constructs as well as on the second-order emotion constructs, whose interrelationships we were interested in. The discriminant validity of the first-order emotion constructs can be seen to be of less importance because these constructs act as reflective indicators of the second-order emotion 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 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. The correlations between the satisfaction, repurchase intention, and recommendation intention constructs as well as the second-order emotion constructs (off-diagonal cells) and their square roots of AVEs (on-diagonal cells) are reported in Appendix D. As can be seen, they were all found to have a satisfactory discriminant validity.

4.3 Goodness-of-Fit

In accordance with the guidelines by Gefen, Rigdon, and Straub (2011), the goodness of-fit of the estimated 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 hypothesis of the model fitting the data ($\chi^2(540) = 1,393.894$, $p < 0.001$). In contrast, the four fit indices (CFI = 0.960, TLI = 0.956, RMSEA = 0.030, SRMR = 0.045) 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 Construct Reliability and Validity

The standardised estimation results of the research model are reported in Figure 2. In terms of the proportion of explained variance (R^2), the model was able to explain 45.0 % of the variance in satisfaction, 27.3 % of the variance in repurchase intention, and 47.2 % of the variance in recommendation intention. As hypothesised in our model, satisfaction was found to have a positive and statistically significant effect on both repurchase and recommendation intentions. Of the second-order emotion constructs, positive emotions were found to have a positive and statistically significant effect on satisfaction as well as on repurchase and recommendation intentions. In contrast, negative emotions were found to have a negative and statistically significant effect only on satisfaction, whereas their effects on repurchase and recommendation intentions were found to be close to zero and statistically not significant. This means that satisfaction acts as a partial mediator of the effects of positive emotions on both repurchase intention and recommendation but a complete mediator of the effects of negative emotions on both repurchase intention and recommendation (Baron & Kenny, 1986). The indirect effects via satisfaction and the total effects of positive and negative emotions on repurchase and recommendation intentions are reported in Table 2.

Table 2: Direct, indirect, and total effects on repurchase and recommendation intentions (*) = $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$)**

Effect	Direct effect	Indirect effect via satisfaction	Total effect
Positive emotions on repurchase intention	0.207***	0.180***	0.387***
Negative emotions on repurchase intention	-0.025	-0.124***	-0.150***
Positive emotions on recommendation intention	0.261***	0.248***	0.509***
Negative emotions on recommendation intention	-0.006	-0.171***	-0.177***

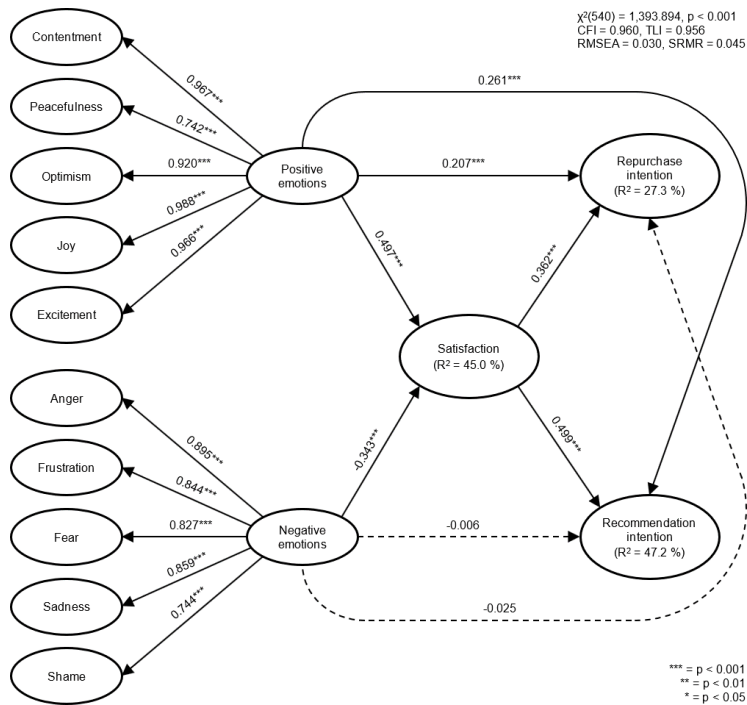


Figure 2: Estimation results of the research model

5 Discussion and Conclusions

In this study, our objective was to examine consumer emotions during online shopping episodes as well as their effects on consumer satisfaction and two types of post-purchase behavioural intentions: repurchase and recommendation intentions. All in all, we found consumers to experience a wide variety of emotions during their online shopping episodes. Of these, we found the positive emotions to be experienced more strongly than the negative emotions, which was not surprising when considering that we were examining only online shopping episodes that ended in a successful order.

We also made several interesting findings concerning the effects of positive and negative emotions on satisfaction as well as on repurchase and recommendation intentions. First, we found positive emotions to affect all the three constructs more strongly than negative emotions. For the repurchase and recommendation intentions, this was equally true when considering the direct effects, the indirect effects via satisfaction, and the total effects. This finding can be seen to be in line with some prior studies (e.g., Westbrook, 1987; Oliver, 1993) but in conflict with some others (Westbrook & Oliver, 1991; Mano & Oliver, 1993; Mooradian & Olver, 1997). Second, we also found that positive and negative emotions differ in terms of the mechanisms how they affect repurchase and recommendation intentions. Whereas the effects of negative emotions on them are completely mediated by satisfaction, positive emotions affect them not only indirectly via satisfaction but also directly. In other words, even if consumers would feel unsatisfied with their online shopping episode at the cognitive level, the positive experiences at the emotional level could still encourage them to purchase from that same online store again or recommend that online store to other consumers. These findings partly support but are also partly in conflict with the prior findings by Mooradian and Olver (1997), which have suggested that satisfaction acts as a key construct that completely mediates the effects of both positive and negative emotions on repurchase and recommendation intentions. In the context of online shopping, although this would seem to be true in the case of negative emotions, it would not seem to be true in the case of positive emotions.

The aforementioned findings can be considered not only interesting in theoretical terms, but also having important practical implications. On one hand, they suggest that the managers of online stores should put more emphasis on

arousing positive emotions among consumers than on avoiding the arousal of negative emotions. Some ways for this kind of emotional arousal have been suggested by Jones, Spence, and Vallaster (2008). This suggestion stems not only from the stronger effects of positive emotions in comparison to negative emotions but also from their more certain effects on repurchase and recommendation intentions due to affecting them not only indirectly via satisfaction but also directly. In other words, even if their positive effects on satisfaction may be cancelled out by an equal drop in satisfaction that is caused by other incidents during the online shopping episodes, they will still end up in having a positive total effect on repurchase and recommendation intentions due to affecting them directly. On the other hand, because negative emotions lack these kinds of direct effects, the findings also suggest that even if consumers experience negative emotions during their online shopping episodes, it is possible for the managers of online stores to prevent them from ultimately having a negative effect on repurchase and recommendation intentions through recovery measures that compensate the potential drop in satisfaction. Some examples of these kinds of recovery measures could be giveaway products that are added to the shipped orders or discount codes and coupons that consumers can use in their future orders. These have been discussed in more detail, for example, by Kuo and Wu (2012).

6 Limitations and Future Research

We consider this study to have three main limitations. First, we collected the data only on online shopping episodes that ended in a successful order because the co-operating online stores were willing to add a link to our online survey only on the webpage that was shown to their customers after completing an order. This is likely to introduce bias to the balance of the experienced positive and negative emotions in terms of their strength. Although this bias should not affect our findings concerning the effects of the experienced emotions on satisfaction as well as on repurchase and recommendation intentions (e.g., even if there were relatively few respondents with strong negative emotions, these few respondents reported practically equally strong repurchase and recommendation intentions as the respondents with no negative emotions), future studies would benefit from collecting data also on other kinds of online shopping episodes in order to confirm our findings. Second, we collected the data only via Finnish online stores

from Finnish online shoppers. Because emotions often are somewhat culture-specific (Russell, 1991), future studies are obviously required to replicate our study in other countries and cultures in order to promote the generalisability of its findings. Third, some of the indicators and constructs in our research model had issues in terms of their reliability and validity, which may be seen to question some of our findings concerning especially the effects of negative emotions. However, we do not see these issues as particularly severe, especially when considering that no issues were found in the overall goodness-of-fit of our model. For example, Bagozzi and Yi (2012) have suggested placing more emphasis on the overall goodness-of-fit of the model instead of rigidly requiring that each and every indicator and construct in the model meets a specific cut-off criterion in terms of their reliability and validity. As stated above, many of the issues also seemed to originate already from the hierarchical framework by Laros and Steenkamp (2005), which was used as the main basis of our theoretical model. Thus, future studies may be required to refine the operationalisations of some of its constructs. All in all, we also see that future studies are needed to more thoroughly explain some of the findings made in the present study, such as why positive emotions seem to have a stronger effect on satisfaction as well as on repurchase and recommendation intentions in comparison to negative emotions as well as why positive and negative emotions seem to differ in terms of the mechanisms how they affect repurchase and recommendation intentions. Here, a more qualitative approach would probably be a more productive one than the quantitative approach applied in this study.

Appendix A: First-Order Constructs and Their Indicators before the Modifications

Construct or indicator	Missing	Mean	SD	Loading
Contentment (CR = 0.768, AVE = 0.624)				
Contented	0.9 %	5.268	1.246	0.817***
Confident	2.9 %	5.007	1.327	0.762***
Peacefulness (CR = 0.908, AVE = 0.621)				
Calm	5.9 %	4.532	1.470	0.813***
Peaceful	4.6 %	4.924	1.374	0.755***
Optimism (CR = 0.823, AVE = 0.608)				
Optimistic	5.4 %	4.609	1.479	0.790***
Encouraged	12.1 %	3.727	1.705	0.741***
Hopeful	5.8 %	4.411	1.543	0.806***
Joy (CR = 0.867, AVE = 0.686)				
Happy	5.9 %	4.452	1.454	0.813***
Pleased	2.7 %	4.925	1.362	0.808***
Joyful	2.6 %	4.724	1.423	0.862***
Excitement (CR = 0.831, AVE = 0.622)				
Excited	2.1 %	4.724	1.519	0.831***
Thrilled	6.8 %	3.833	1.880	0.744***
Attracted	1.6 %	5.239	1.314	0.789***
Anger (CR = 0.841, AVE = 0.469)				
Angry	1.0 %	1.116	0.481	0.640***
Annoyed	1.2 %	1.166	0.558	0.700***
Irritated	1.3 %	1.190	0.607	0.703***
Frustrated	1.4 %	1.468	0.893	0.715***
Discontented	1.2 %	1.446	0.805	0.682***
Disappointed	1.5 %	1.436	0.824	0.667***
Fear (CR = 0.682, AVE = 0.417)				
Afraid	1.5 %	1.136	0.514	0.635***
Nervous	2.2 %	1.428	0.870	0.608***
Worried	1.5 %	1.421	0.845	0.692***
Sadness (CR = 0.648, AVE = 0.381)				
Depressed	2.1 %	1.138	0.487	0.670***
Sad	1.8 %	1.176	0.576	0.612***
Guilty	1.3 %	1.422	0.920	0.566***
Shame (CR = 0.679, AVE = 0.415)				
Embarrassed	2.0 %	1.142	0.517	0.713***
Ashamed	1.4 %	1.113	0.467	0.626***
Humiliated	1.6 %	1.081	0.455	0.587***
Satisfaction (CR = 0.859, AVE = 0.670)				
How satisfied are you with your online store visit overall?	0.7 %	6.136	0.936	0.777***

How satisfied are you with your online store visit in relation to your expectations?	5.3 %	5.917	1.113	0.826***
How satisfied are you with your online store visit in relation to your idea of an ideal online store visit?	2.3 %	5.871	1.091	0.850***
Repurchase intention (CR = 0.912, AVE = 0.776)				
I am likely to repurchase from this online store in the near future.	2.1 %	6.041	1.054	0.875***
I anticipate to repurchase from this online store in the near future.	2.7 %	6.002	1.031	0.890***
I expect to repurchase from this online store in the near future.	3.9 %	5.911	1.080	0.878***
Recommendation intention (CR = 0.900, AVE = 0.751)				
I will say positive things about this online store to others.	2.9 %	5.999	1.021	0.873***
I will recommend this online store to all who seek my advice.	2.8 %	5.916	1.115	0.854***
I will encourage my friends to do business in this online store.	3.0 %	5.809	1.139	0.872***

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

Appendix B: First-Order Constructs and Their Indicators after the Modifications

Construct or indicator	Missing	Mean	SD	Loading
Contentment (CR = 0.768, AVE = 0.624)				
Contented	0.9 %	5.268	1.246	0.817***
Confident	2.9 %	5.007	1.327	0.762***
Peacefulness (CR = 0.908, AVE = 0.621)				
Calm	5.9 %	4.532	1.470	0.813***
Peaceful	4.6 %	4.924	1.374	0.755***
Optimism (CR = 0.823, AVE = 0.608)				
Optimistic	5.4 %	4.609	1.479	0.790***
Encouraged	12.1 %	3.727	1.705	0.741***
Hopeful	5.8 %	4.411	1.543	0.806***
Joy (CR = 0.867, AVE = 0.686)				
Happy	5.9 %	4.452	1.454	0.813***
Pleased	2.7 %	4.925	1.362	0.808***
Joyful	2.6 %	4.724	1.423	0.862***
Excitement (CR = 0.831, AVE = 0.622)				
Excited	2.1 %	4.724	1.519	0.831***
Thrilled	6.8 %	3.833	1.880	0.744***
Attracted	1.6 %	5.239	1.314	0.789***
Anger (CR = 0.771, AVE = 0.529)				
Angry	1.0 %	1.116	0.481	0.700***
Annoyed	1.2 %	1.166	0.558	0.736***

Irritated	1.3 %	1.190	0.607	0.746***
Frustration (CR = 0.788, AVE = 0.554)				
Frustrated	1.4 %	1.468	0.893	0.749***
Discontented	1.2 %	1.446	0.805	0.751***
Disappointed	1.5 %	1.436	0.824	0.733***
Fear (CR = 0.682, AVE = 0.417)				
Afraid	1.5 %	1.136	0.514	0.627***
Nervous	2.2 %	1.428	0.870	0.619***
Worried	1.5 %	1.421	0.845	0.690***
Sadness (CR = 0.617, AVE = 0.447)				
Depressed	2.1 %	1.138	0.487	0.709***
Sad	1.8 %	1.176	0.576	0.625***
Shame (CR = 0.646, AVE = 0.479)				
Embarrassed	2.0 %	1.142	0.517	0.754***
Ashamed	1.4 %	1.113	0.467	0.624***
Satisfaction (CR = 0.858, AVE = 0.669)				
How satisfied are you with your online store visit overall?	0.7 %	6.136	0.936	0.776***
How satisfied are you with your online store visit in relation to your expectations?	5.3 %	5.917	1.113	0.826***
How satisfied are you with your online store visit in relation to your idea of an ideal online store visit?	2.3 %	5.871	1.091	0.850***
Repurchase intention (CR = 0.912, AVE = 0.776)				
I am likely to repurchase from this online store in the near future.	2.1 %	6.041	1.054	0.875***
I anticipate to repurchase from this online store in the near future.	2.7 %	6.002	1.031	0.889***
I expect to repurchase from this online store in the near future.	3.9 %	5.911	1.080	0.878***
Recommendation intention (CR = 0.900, AVE = 0.751)				
I will say positive things about this online store to others.	2.9 %	5.999	1.021	0.873***
I will recommend this online store to all who seek my advice.	2.8 %	5.916	1.115	0.854***
I will encourage my friends to do business in this online store.	3.0 %	5.809	1.139	0.872***

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

Appendix C: Second-Order Constructs and Their Indicators after the Modifications

Construct or indicator	Loading
Positive emotions (CR = 0.965, AVE = 0.848)	
Contentment	0.967***
Peacefulness	0.742***
Optimism	0.920***
Joy	0.988***
Excitement	0.966***
Negative emotions (CR = 0.920, AVE = 0.698)	
Anger	0.895***
Frustration	0.844***
Fear	0.827***
Sadness	0.859***
Shame	0.744***

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

Appendix D: Construct Correlations and Square Roots of AVEs

	Positive emotions	Negative emotions	Satisfaction	Repurchase intention	Recommendation intention
Positive emotions	0.921				
Negative emotions	-0.248***	0.835			
Satisfaction	0.583***	-0.467***	0.818		
Repurchase intention	0.424***	-0.246***	0.495***	0.881	
Recommendation intention	0.553***	-0.304***	0.653***	0.803***	0.866

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

References

- Anderson, E. W. (1998). Customer Satisfaction and Word of Mouth. *Journal of Service Research*, 1(1), 5–17. doi: 10.1177/109467059800100102
- Anderson, E. W., & Sullivan, M. W. (1993). The Antecedents and Consequences of Customer Satisfaction for Firms. *Marketing Science*, 12(2), 125–143. doi: 10.1287/mksc.12.2.125
- Bagozzi, R. P., Gopinath, M., & Nyer, P. U. (1999). The Role of Emotions in Marketing. *Journal of the Academy of Marketing Science*, 27(2), 184–206. doi: 10.1177/0092070399272005
- Bagozzi, R. P., & Yi, Y. (1988). On the Evaluation of Structural Equation Models. *Journal of the Academy of Marketing Science*, 16(1), 74–94. doi: 10.1177/009207038801600107
- Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science*, 40(1), 8–34. doi: 10.1007/s11747-011-0278-x
- Baron, R. M., & Kenny, D. A. (1986). The Moderator–Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182. doi: 10.1037/0022-3514.51.6.1173
- Beaudry, A., & Pinsonneault, A. (2010). The Other Side of Acceptance: Studying the Direct and Indirect Effects of Emotions on Information Technology Use. *MIS Quarterly*, 34(4), 689–710. doi: 10.2307/25750701
- Bentler, P. M., & Bonett, D. G. (1980). Significance Tests and Goodness of Fit in the Analysis of Covariance Structures. *Psychological Bulletin*, 88(3), 588–606. doi: 10.1037/0033-2909.88.3.588
- Childers, T. L., Carr, C. L., Peck, J., & Carson, S. (2001). Hedonic and utilitarian motivations for online retail shopping behavior. *Journal of Retailing*, 77(4), 511–535. doi: 10.1016/S0022-4359(01)00056-2
- Ekman, P. & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of Personality and Social Psychology*, 17(2), 124–129. doi: 10.1037/h0030377
- Éthier, J., Hadaya, P., Talbot, J., & Cadieux, J. (2006). B2C web site quality and emotions during online shopping episodes: An empirical study. *Information & Management*, 43(5), 627–639. doi: 10.1016/j.im.2006.03.004
- Éthier, J., Hadaya, P., Talbot, J., & Cadieux, J. (2008). Interface design and emotions experienced on B2C Web sites: Empirical testing of a research model. *Computers in Human Behavior*, 24(6), 2771–2791. doi: 10.1016/j.chb.2008.04.004
- Fornell, C. (1992). A National Customer Satisfaction Barometer: The Swedish Experience. *Journal of Marketing*, 56(1), 6–21. doi: 10.1177/002224299205600103
- Fornell, C., Johnson, M. D., Anderson, E. W., Cha, J., & Bryant, B. E. (1996). The American Customer Satisfaction Index: Nature, Purpose, and Findings. *Journal of Marketing*, 60(4), 7–18. doi: 10.2307/1251898
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39–50. doi: 10.2307/3151312

- Gefen, D., Rigdon, E. E., & Straub, D. (2011). An Update and Extension to SEM Guidelines for Administrative and Social Science Research. *MIS Quarterly*, 35(2), iii–xiv. doi: 10.2307/23044042
- Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural Equation Modelling: Guidelines for Determining Model Fit. *Electronic Journal of Business Research Methods*, 6(1), 53–59. doi: 10.21427/D7CF7R
- Hsu, S.-H. (2008). Developing an index for online customer satisfaction: Adaptation of American Customer Satisfaction Index. *Expert Systems with Applications*, 34(4), 3033–3042. doi: 10.1016/j.eswa.2007.06.036
- Hu, L.-T., & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling*, 6(1), 1–55. doi: 10.1080/10705519909540118
- Izard, C. E. (1977). *Human Emotions*. New York, NY: Plenum.
- Jones, M. Y., Spence, M. T., & Vallaster, C. (2008). Creating emotions via B2C websites. *Business Horizons*, 51(5), 419–428. doi: 10.1016/j.bushor.2008.03.009
- Khalifa, M., & Liu, V. (2007). Online consumer retention: contingent effects of online shopping habit and online shopping experience. *European Journal of Information Systems*, 16(6), 780–792. doi: 10.1057/palgrave.ejis.3000711
- Koufaris, M. (2002). Applying the Technology Acceptance Model and Flow Theory to Online Consumer Behavior. *Information Systems Research*, 13(2), 205–223. doi: 10.1287/isre.13.2.205.83
- Koufteros, X., Babbar, S., & Kaighobadi, M. (2009). A paradigm for examining second-order factor models employing structural equation modeling. *International Journal of Production Economics*, 120(2), 633–652. doi: 10.1016/j.ijpe.2009.04.010
- Kuo, Y.-F., & Wu, C.-M. (2012). Satisfaction and post-purchase intentions with service recovery of online shopping websites: Perspectives on perceived justice and emotions. *International Journal of Information Management*, 32(2), 127–138. doi: 10.1016/j.ijinfomgt.2011.09.001
- Laros, F. J. M., & Steenkamp, J.-B. E. M. (2005). Emotions in consumer behavior: a hierarchical approach. *Journal of Business Research*, 58(10), 1437–1445. doi: 10.1016/j.jbusres.2003.09.013
- Mano, H., & Oliver, R. (1993). Assessing the Dimensionality and Structure of the Consumption Experience: Evaluation, Feeling, and Satisfaction. *Journal of Consumer Research*, 20(3), 451–466. doi: 10.1086/209361
- Mittal, V., & Kamakura, W. A. (2001). Satisfaction, Repurchase Intent, and Repurchase Behavior: Investigating the Moderating Effect of Customer Characteristics. *Journal of Marketing Research*, 38(1), 131–142. doi: 10.1509/jmkr.38.1.131.18832
- Mooradian, T. A., & Olver, J. M. (1997). “I Can’t Get No Satisfaction:” The Impact of Personality and Emotion on Postpurchase Processes. *Psychology & Marketing*, 14(4), 379–393. doi: 10.1002/(SICI)1520-6793(199707)14:4<379::AID-MAR5>3.0.CO;2-6
- Muthén, L. K., & Muthén, B. O. (2019). Mplus Home Page. Retrieved from <http://www.statmodel.com>
- Oliver, R. L. (1993). Cognitive, Affective, and Attribute Bases of the Satisfaction Response. *Journal of Consumer Research*, 20(3), 418–430. doi: 10.1086/209358

- Oliver, R. L., & Swan, J. E. (1989). Consumer Perceptions of Interpersonal Equity and Satisfaction in Transactions: A Field Survey Approach. *Journal of Marketing*, 53(2), 21–35. doi: 10.1177/002224298905300202
- Pappas, I. O., Kourouthanassis, P. E., Giannakos, M. N., & Chrissikopoulos, V. (2014). Shiny happy people buying: the role of emotions on personalized e-shopping. *Electronic Markets*, 24(3), 193–206. doi: 10.1007/s12525-014-0153-y
- Plutchik, R. (1980). *Emotion: A Psychoevolutionary Synthesis*. New York, NY: Harper & Row.
- Richins, M. L. (1997). Measuring Emotions in the Consumption Experience. *Journal of Consumer Research*, 24(2), 127–146. doi: 10.1086/209499
- Roseman, I. J. (1984). Cognitive determinants of emotions: A structural theory. In P. Shaver (Ed.), *Review of Personality and Social Psychology* (Vol. 5, pp. 11–36). Beverly Hills, CA: Sage.
- Roseman, I. J., Antoniou, A. A., & Jose, P. E. (1996). Appraisal Determinants of Emotions: Constructing a More Accurate and Comprehensive Theory. *Cognition & Emotion*, 10(3), 241–278. doi: 10.1080/026999396380240
- Russell, J. A. (1980). A Circumplex Model of Affect. *Journal of Personality and Social Psychology*, 39(6), 1161–1178. doi: 10.1037/h0077714
- Russell, J. A. (1991). Culture and the Categorization of Emotions. *Psychological Bulletin*, 110(3), 426–450. doi: 10.1037/0033-2909.110.3.426
- Russell, J. A., & Mehrabian, A. (1977). Evidence for a Three-Factor Theory of Emotions. *Journal of Research in Personality*, 11(3), 273–294. doi: 10.1016/0092-6566(77)90037-X
- Selivanova, I., Hallissey, A., Letsios, A., & Eklöf, J. (2002). The EPSI rating initiative. *European Quality*, 9, 10–25.
- Westbrook, R. A. (1987). Product/Consumption-Based Affective Responses and Postpurchase Processes. *Journal of Marketing Research*, 24(3), 258–270. doi: 10.2307/3151636
- Westbrook, R. A., & Oliver, R. L. (1991). The Dimensionality of Consumption Emotion Patterns and Consumer Satisfaction. *Journal of Consumer Research*, 18(1), 84–91. doi: 10.1086/209243
- Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The Behavioral Consequences of Service Quality. *Journal of Marketing*, 60(2), 31–46. doi: 10.1177/002224299606000203

