



3. The effect of online community networking on trust building and e-tail repurchase intention

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Abstract We analyze the effects of community network building and trust on e-tail repurchase intention using data collected from customers of a Norwegian nutrition e-tailer. Customers who are highly engaged in the web-based community network score significantly higher on repurchase intention than customers with less engagement. The degree of engagement moderates the effects that trust and satisfaction have on repurchase intention, increasing the effect of trust and decreasing the effect of satisfaction.

Keywords e-tailing | repurchase intention | satisfaction | trust | community network | moderation effects

3.1 INTRODUCTION

The Internet has created a more frictionless economy with low transaction costs, implying an evolvment from *information scarcity* to *information democracy* (Verona & Prandelli, 2002). In this environment, the exchange of consumer-related personal information plays an important role for the commercial actors. Access to such information makes it easier for firms to profile their customers and customize products and services. However, due to concerns related to privacy protection, authorities in many countries have implemented laws that regulate web-based commercial behavior. The e-commerce regulation makes affiliation strategies more important for future e-businesses in order to create loyal customers. The term *affiliation* used in this context is related to the social capital concept from social theory (Coleman, 1990; Putnam, 1995). Additionally, the development of Internet businesses has reduced the importance of traditional negative switching costs by caus-

ing a shift in bargaining power to end consumers (Porter, 2001). This has also led to an increase in the importance of learning-based affiliation strategies, such as community network building and reward-oriented lock-in strategies. Theoretically, it is assumed that a reward-oriented lock-in strategy primarily strengthens the action loyalty, whereas an affiliation strategy (e.g., community network building) will have a stronger impact on attitudinal loyalty (Verona & Prandelli, 2002; Prentice Han, Hua, & Hu, 2019). While there is an extensive amount of literature on the effects of switching costs and other lock-in mechanisms on consumer behavior (e.g., Jones, Reynolds, Mothersbaugh, & Beatty, 2007; Lam, Shankar, Erramilli, & Murthy, 2004; Nagengast, Evanschitzky, Blut, & Rudolph, 2014; Nettet & Helgesen, 2014; Nettet, Bergem, Nervik, Sørli, & Helgesen, 2021), the effects of affiliation strategies on attitudinal loyalty in an e-tail context have received less attention, albeit with some recent exceptions (e.g., Prentice et al., 2019; Tiruwa, Yadav, & Suri, 2018; Wang, Cao, & Park, 2019). Too little is known of factors that might moderate e-loyalty drivers (Goode & Harris, 2007; Grewal, Lindsey-Mullikin, & Munger, 2004; Kumar, Pozza, & Ganesh, 2013; Schibrowsky, Peltier, & Nill, 2007).

One important contribution to the exploration of drivers of e-loyalty is Srinivasan, Anderson, and Ponnayolu (2002). They identified eight factors (the “8 Cs”) that can influence e-loyalty, of which *community network* was one. They found a small direct effect of community network measured as the usefulness of a virtual community. However, they did not explore possible moderation (interaction) effects, and one might suspect that inclusion of interaction effects could alter some of their findings. In a more recent analysis, Prentice et al. (2019) found positive moderation effects of community membership duration on the relationships between customer to customer identification and customer attitudinal engagement, as well as the relationship between customer attitudinal engagement and purchase intention.

The research objective of this chapter is to uncover the different effects of community network engagement and trust on e-tail repurchase intention within a structural equation modelling approach. One important contribution is the simultaneous estimation of direct effects, mediation effects, and moderation effects. The context is a Norwegian virtual fitness (nutrition) store. A structural model of customer e-tail repurchase intention, community network engagement, trust, satisfaction, and service quality is provided and tested, and managerial implications are discussed.

The remainder of the chapter is organized as follows: section 3.2 outlines the conceptual framework and hypotheses, section 3.3 presents data and methods, section 3.4 shows the results, and section 3.5 concludes and discusses the findings and the implications.

3.2 CONCEPTUAL FRAMEWORK AND HYPOTHESES

3.2.1 The conceptual model

Figure 3.1 presents the study's theoretical model. It builds on a theoretical model, the H-G model, presented in Harris and Goode (2004), where perceived value, trust, and satisfaction were the main drivers of e-tail loyalty, and where service quality was mediated through these three drivers. In our model, the four-stage e-tail loyalty concept in the H-G model is replaced by a narrower concept focusing on behavioral e-tail repurchase intention, and perceived value is integrated into the satisfaction concept, which is measured as a product/service consumption satisfaction scale as suggested by Oliver (1997). The model is also expanded in order to take account of the effects of virtual community engagement. In this model, trust is assumed to be positively related to both satisfaction and loyalty, and satisfaction is assumed to be positively linked to loyalty. Service quality is assumed to be positively related to satisfaction, trust, and loyalty – it is assumed to have both a direct effect on repurchase intention and mediating effects via trust and satisfaction. Online community network engagement is assumed to have both a direct effect on e-tail loyalty and moderating effects on the main links between trust, satisfaction, and loyalty. These hypotheses are elaborated in the sections below.

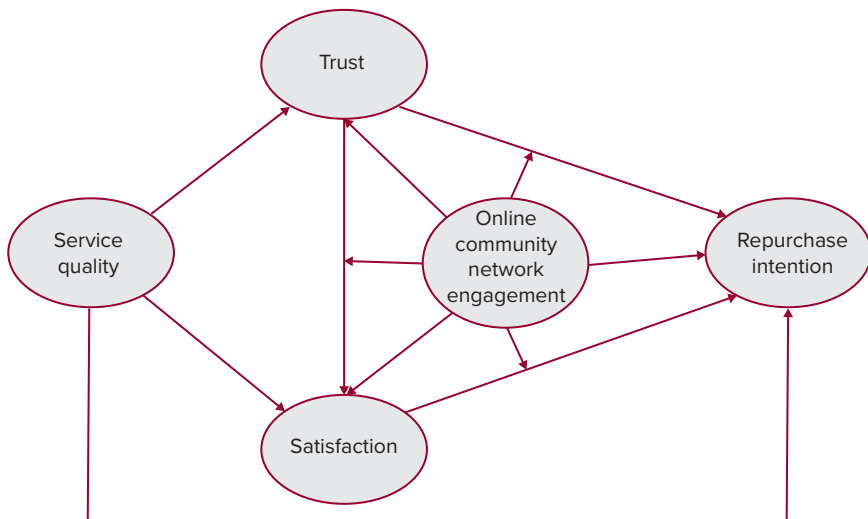


Figure 3.1: The proposed model.

3.2.2 E-tail repurchase intention

Behavioral intention is defined by Eagly and Chaiken (1993) as a person's conscious plan to exert effort to carry out a particular behavior, with these intentions being formed both as a personal evaluative and normative construct. This view of behavioral intention equates to what Oliver (1997) labels *conative loyalty* or *intention to re-buy*. Our view of customer loyalty is based on attitudes embedded in the cognitive–affective–conative states of consumers (Chaudhuri & Holbrook, 2001; Oliver, 1999; Olsen, 2002).

3.2.3 Satisfaction and e-tail repurchase intention

A key component in any customer retention program is, of course, satisfaction (Kim, Ferrin, & Rao, 2009; Oliver, 1997; Wolter, Bock, Smith, & Cronin Jr., 2017). Satisfaction can be defined as an overall evaluation of performance based on all prior experiences with a firm (Anderson, 1994; Bitner & Hubbert, 1994), where conceptually higher levels of satisfaction will reduce the perceived benefits of switching providers (Anderson & Sullivan, 1993). Empirically, considerable research supports the linkage between satisfaction and retention (e.g., Oliver & Swan, 1989; Taylor & Baker, 1994). Research findings show robust evidence in this respect – demonstrating a positive relationship between customer satisfaction and behavioral loyalty (Caceres & Papariodamis, 2007; Oliver, 1999; Wong & Sohal, 2003).

Several researchers have investigated the determinants of satisfaction with online purchasing (Balasubramanian, Konana, & Menon, 2003; Evanschitzky, Gopalkrishnan, Iyer, Hesse, & Ahlert, 2004). Szymansky and Hise (2000) concluded that convenience, website design (easy to navigate, fast, uncluttered), and security of financial transactions were the dominant contributors to *e-satisfaction*. Online consumer satisfaction has often been used to measure e-commerce success. For example, Szymansky and Hise (2000) suggested that satisfaction experienced by online customers reduced the perceived benefit of switching to other retailers on the net. Based on these considerations, the following hypothesis is offered:

H1: Satisfaction has a positive impact on e-tail loyalty.

3.2.4 Trust and e-tail repurchase intention

The concept of trust has been investigated in many disciplines (e.g., consumer behavior, sociology, psychology, management, marketing, economics, and information technology) and has been defined in a variety of ways in the literature.

There is no universally accepted definition. Sirdeshmukh, Singh, and Sabol (2002) define it as “the expectations held by the consumer that the service provider is dependable and can be relied on to deliver on its promises” (p. 17). The presence of multiple definitions of trust in the literature is likely due to two reasons. First, trust is a highly abstract concept and is often used interchangeably with related concepts such as *credibility*, *reliability*, or *confidence*. Research indicates that trust is an important barrier to customer defection (Harris & Goode, 2004; Macintosh & Lockshin, 1997; Sirdeshmukh et al., 2002). Developing strong interpersonal relationships based on trust may generate greater retention and help companies through short-term fluctuations in service quality or satisfaction. Morgan and Hunt (1994) define trust as one party’s confidence in an exchange partner’s reliability and integrity. Trust is thus an indicator of a growing relationship that tends to foster higher levels of commitment (Morgan & Hunt, 1994) and cooperation (Schurr & Ozanne, 1985).

To what extent does trust in an online product provider influence the intention to buy or rebuy at a specific website? The existing empirical evidence suggests that trust in the company negatively influences the perceived risk that is associated with buying on the Internet (van der Heijden, Verhagen, & Creemers, 2003). The more a person trusts the Internet company, the less the person will perceive risks associated with online buying. Tan and Thoen (2002) found that lack of trust in the organization could be offset by trust in the control system; we might not trust the Internet company, but we may trust the control system that monitors its performance. Walczuch and Lundgren (2004) found several psychological antecedents to e-trust in a review and categorized them into five groups of factors: personality-based, perception-based, attitude-based, experience-based, and knowledge-based. According to their results, perception-based factors are the main determinants of consumer trust in e-retailing. Harn, Khatibi, and bin Ismail (2006) found a positive correlation between future online spending and online shopping customers’ level of trust in online retailers. Consumers of online shopping will increase their future online spending when their level of trust in online retailers increases. These views lead to our second hypothesis:

H2: Trust has a positive impact on e-tail repurchase intention.

Balance theory (Heider, 1958) claims that people tend to develop a positive attitude towards those with whom they have some prior association. The more prior satisfactory associations e-commerce users have had with an Internet shop, the more positive attitude they will develop towards that shop. This can be argued to

be a symbiotic relationship; satisfaction builds trust, and trust builds satisfaction. In the literature, we find arguments for both the satisfaction–trust link (e.g., Bauer, Grether, & Leach, 2002; Ryu, Park, & Min, 2007) and the trust–satisfaction link (Chen & Lee, 2008; Casalo, Flavián, & Guinalú, 2007; Flavián, Guinalú, & Gurrea, 2006; Harris & Goode, 2004). The most convincing arguments are, however, in favor of the trust–satisfaction link. For example, Kim et al. (2009) reported a significant, positive, direct effect of trust on satisfaction in a Business-to-Consumers (B2C) e-tail context by using longitudinal data. Harris and Goode (2004) claim that in accordance with social change theory, trust will have a direct influence on perceptions of satisfaction. Flavián et al. (2006) found that satisfaction could act as an instrument to engender greater trust, and Balasubramanian et al. (2003) found that general trust in the online broker had the biggest impact on “e-satisfaction”, followed by online brokers’ operational excellence. Chen and Lee (2008) found that the perceived trust greatly enhanced the satisfaction of online shoppers and significantly influenced their buying intentions. Bauer et al. (2002), Szymansky and Hise (2000), and Harris and Goode (2004), however, call for more research on the trust–satisfaction link. These views lead to the following hypothesis:

H3: Trust has a positive impact on satisfaction.

3.2.5 Community network building and e-tail repurchase intention

A community can be defined as a group where individuals come together based on an obligation to one another or as a group where individuals come together for a shared purpose (Rothaermel & Suejyana, 2001). The community as a unit of analysis has its origin in anthropological and sociological research but is also widely adopted in business literature. Within the business area, communities are revenue-based and either B2C- or Business-to-Business (B2B)-focused. B2C-focused communities can further be divided into what Franz and Wolking (2003) call 1) *stand-alone communities* and 2) *add-on communities*. The first category reflects communities basically aimed at direct revenues via, for example, advertising, e-commerce, and subscriptions, while the second category is aimed at indirect revenues from, amongst other things, product development, market research, and customer integration. Add-on communities are the most interesting ones because the indirect revenues provided from this type of community are closely related to dynamic innovation processes, customer feedback and information, and, not least, the creation of customer loyalty (Äkkinen, 2005).

A number of businesses including book sellers, flower vendors, auction houses, and information providers have formed virtual communities of customers because they recognize that these communities have the potential to increase customers' loyalty (Hagel & Armstrong, 1997; Srinivasan et al., 2002) and shift the bargaining power from the supplier to the customers (Kardaras, Karakostas, & Papatanas-siou, 2003).

There are several reasons why a community network could affect customer loyalty, such as being effective in facilitating word-of-mouth and giving customers the ability to exchange information and compare experiences. One of the most important reasons is that community building fosters increased customer involvement and commitment. It is well known from general consumer behavior literature that customer involvement is closely related to motivation and loyalty. Jang, Olfman, Ko, Koh, and Kim (2008) link community commitment to customer emotions and brand loyalty, and Gamboa and Goncalves (2014) found a positive direct effect of community commitment on brand loyalty. This leads to the following hypothesis:

H4a: Online community network engagement has a positive impact on e-tail repurchase intention.

The creation of community networks is obviously also connected to both satisfaction and trust building. Amegbe, Boateng, and Mensah (2017) found a significant effect of the usage of social media network sites on customer satisfaction, which thus supports the following hypothesis:

H4b: Online community network engagement has a positive impact on satisfaction.

Jarvenpaa, Tractinsky, and Vitale (2000) describe what happens in online (virtual) communities as a process of *trust transference*, where a consumer begins trusting "unknown others" because the "unknown others" are trusted by other consumers he or she trusts. Wang and Head (2007) claim that concepts such as trust in quality and brands may serve as important elements in consumer decision making when purchasing products online. This is due to the lack of support for evaluative criteria such as tactile input when buying on the Internet. Trust building and online community networking are thus important in an e-commerce context and should be viewed as complementary processes. Due to the assertion that trust and satisfaction are closely related concepts, the following hypothesis is offered:

H4c: Online community network engagement has a positive impact on trust.

In retailing, consumer involvement is also shown to have a moderating effect on the influence of retailer attributes on retail brand equity (Swoboda, Haelsig, Schramm-Klein, & Morschett, 2009). Suh and Yi (2006) find that consumer involvement moderates both the satisfaction–loyalty (negative) link and the image–loyalty (positive) link. Prentice et al. (2019) found positive moderation effects of community network involvement on both the relationship between customer to customer identification and customer attitudinal engagement and the relationship between customer attitudinal engagement and purchase intention. Based on these findings, and the above discussion of the close relationship between trust and satisfaction, the following hypotheses are offered:

H4d: Online community network engagement has a moderating effect on the link from trust to e-tail repurchase intention.

H4e: Online community network engagement has a moderating effect on the link from satisfaction to e-tail repurchase intention.

H4f: Online community network engagement has a moderating effect on the link from trust to satisfaction.

3.2.6 Service quality and e-tail repurchase intention

The introduction of the “perceived service quality” model created an interest in measuring service quality (Grönros, 1998), and service quality is a widely studied and debated construct. Caceres and Paparoidamis (2007) argue that delivering service quality is an essential strategy for retaining customers in today’s competitive environment. According to Parasuraman, Zeithaml, and Berry (1985), the perception of service quality is a result of a comparison between what consumers consider the service should be and the actual performance delivered by the service provider. Perceived service quality in the context of e-tailing refers to the extent to which websites facilitate effective and efficient shopping, purchasing, and delivery (Parasuramen, Zeithaml, & Malhotra, 2005; Zeithaml, Parasuraman, & Malhotra, 2002). Zeithaml et al. (2002) focus on the key differences between service quality and electronic-service quality. When applying traditional measures of service quality (e.g., SERVQUAL), it might be necessary to consider additional dimensions such as ease of navigation, flexibility, efficiency, and security. At the same

time, traditional aspects of service quality like empathy would not be focused on as much.

Perceived quality is generally found to be a strong precursor to satisfaction (Cronin, Brady, & Hult, 2000; Oliver, 1993). Satisfaction thus acts as a mediator of service quality to behavioral loyalty, and if consumers have high confidence in their overall satisfaction evaluation it is assumed that this mediation effect will be complete. Eisingerich and Bell (2008) showed that investment in enhancing customer service knowledge and service quality also strengthened customer trust and acted as an important service differentiator. These arguments suggest the following hypotheses:

H5: Service quality has a positive impact on satisfaction.

H6: Service quality has a positive impact on trust.

Because satisfaction and trust in expectancy–value models are viewed as attitude constructs, there might be cases where trust and satisfaction only partially mediate the effects of a customer’s service quality evaluation on outcome or loyalty (Bagozzi & Yi, 1994). Bloemer and Kasper (1995) show that strongly held satisfaction evaluations have a higher impact on loyalty than more weakly held evaluations. Thus, in cases where customers have less confidence in their evaluations of satisfaction or trust, service quality might have more direct effects on loyalty. In an e-tail context with a web-based community network facility, confidence is assumed to increase with the degree of community network engagement. These arguments lead to the following hypotheses:

H7a: Service quality has a positive direct impact on e-tail repurchase intention for customers with low community network engagement.

H7b: Service quality has no direct impact on e-tail repurchase intention for customers with high community network engagement.

3.3 METHOD

3.3.1 Sample and data collection

The context of this study is a leading provider of nutrition products to the Norwegian fitness market, established in the mid 1990s. In the beginning they distributed

imported nutrition products sold under their own brands. Their own research led to a new line of nutrition products launched in 2003. In 2005 they launched a new website, implementing a redesigned corporate identity and an integrated webstore and online user forum (community).

The collection of data was based on an online survey taken in 2007. The method can be characterized as a combination of an unrestricted self-service survey/banner and announcement sampling (Couper, 2000). The respondents were first approached by a banner on the front page of the company's website, and then an e-mail invitation containing an embedded URL link to the website hosting the survey was sent to an estimated 10,000 potential respondents. As an incentive to participate, the owner of the webstore provided a gift card worth NOK 500 to one randomly drawn participant. Over a two-week period, a total of 818 persons had viewed the questionnaire, 633 had started filling in the survey, and 527 responses were received. Of these, 32 respondents were removed due to incomplete answers, resulting in a final dataset of 495 respondents. This gives a total response rate of only 5 percent. This is, however, not unusual in Internet-mediated surveys. Whitehead (2007) found evidence that response rates for Internet-mediated surveys are low compared to mail surveys when the request is unsolicited. This way of sampling must be classified as a kind of convenience sampling.

3.3.2 Measurement instruments

The survey contained measures of repurchase intentions, trust, satisfaction, service quality, community network involvement, and community network rating, with a total of 22 items. All items were assessed using the same numeric scale (Likert scale) ranging from 1 = "strongly disagree" to 7 = "strongly agree". The scales are based on measures developed by various researchers (e.g., Harris & Goode, 2004; Oliver, 1997; Tsai & Huang, 2007) and adapted to the context by rewording as well as inclusion of new items and omission of items inappropriate for this context.

Repurchase intention is measured by a five-item scale encompassing 1) overall degree of loyalty; 2) probability of distant future repurchases; 3) probability of immediate future repurchases; 4) probability of recommendation; and 5) degree to which the producer/firm is the consumer's first choice.

Satisfaction is measured along a product/service consumption satisfaction scale, using items suggested by Oliver (1997). This scale is anchored by item 1) overall satisfaction compared to expectation, and also includes the following items: 2) satisfaction with product quality compared to price "fairness", 3) degree of regret "regret", and 4) degree of good product experiences "purchase evaluation" (Oliver,

1997). Additionally, a context-dependent item is also included: 5) the perceived degree of innovativeness of the products.

Trust is measured using a two-item scale covering the overall *credibility* dimension of the concept: 1) the degree of trust in the provider and 2) evaluation of the seriousness of the provider.

Service quality is measured by a five-item scale covering evaluation of 1) delivery speed; 2) response time; 3) service responses; 4) ease of finding products; and 5) ease of returning products.

Community network rating is measured by the following five items: 1) valuable to join the network; 2) responses from network administrators are perceived as thorough and helpful; 3) responses from other network users are perceived as thorough and helpful; 4) easy to register; and 5) have met exciting people in the network.

Two dummy variables categorizing *community network engagement* were constructed: *Community 1* has value 0 when the customer has not visited the online community network and value 1 when he/she has visited the community network. *Community 2* has value 0 when the customer has not visited the online community network and value 1 when he/she has visited and been active on the community network. *Community 2* thus picks up the polar extremes and results in two approximately equal sized groups. Appendix Table A2 shows the statistical metrics of the items.

3.3.3 Analytical approach and methodological issues

To test the hypotheses connected to the model illustrated in Figure 3.1, a two-step modelling strategy is employed (Hair, Sarstedt, Ringle, & Mena, 2012). The first step involves an analysis of the measurement model as estimated by the PLS (Partial Least Square)-path procedure in Smart-PLS (Hair, Hult, Ringle, & Sarstedt, 2017). In the second step, the congruent measurement model is used to build structural models containing the hypothesized paths to be tested.

By estimating identical structural models for each of the two polar extreme subsamples and comparing the structural coefficients, it is possible to uncover the moderating effects of community network engagement. A prerequisite for valid testing of moderation effects by applying the multiple group approach is to establish configurational and metric invariance of the two (high and low engagement) measurement models (Hair, Black, Babin, & Anderson, 2010). Configurational invariance is present if the two models are identical and they both show an acceptable fit. There is metric invariance between the two sub-sample models if they have

similar factor loadings – i.e., the basic meanings of the different constructs are equivalent. Conditioned on configurational and metric invariance, moderating effects are present if the structural coefficients differ significantly between the two sub-sample structural models. However, if community network engagement is both a moderator and a predictor, the multi-group method is not the appropriate method to use. The split in groups will in this case cause a reduction in predictor variance that will be present in the dependent measure as well (Olsen, Wilcox, & Olsson, 2005; Peters & Champoux, 1979). In this case, a more appropriate method would be a moderating model (regression) approach (Olsen et al., 2005). In order to decide which of the methods to apply, one must first test the hypothesis of a direct effect of community network engagement on e-repurchase intention.

Following Lance (1988), the interaction terms in both the OLS (Ordinary Least Square) and the PLS moderation models are represented by residual centering, implying that the interaction terms are partial Gram-Schmidt orthogonalizations (Anton, 1984). As pointed out by Little, Bovaird, and Widaman (2006, p. 7): “unlike mean centering, orthogonalizing via residual centering ensures full independence between the product or powered term and its constituent main-effect.”

3.4 RESULTS

3.4.1 The measurement models

Table 3.1 shows standardized loadings, t-values, and construct reliability measures of the four latent variables for the full sample model.

Table 3.1: PLS measurement model: Full sample (n=495)

Variables (items/factors)	Outer loadings	Dijkstra-Henseler rhoA	Variance extracted
Probability of future repurchases, Y_1	0.87		
I consider myself as a loyal customer, Y_2	0.88		
The firm is my first choice, Y_3	0.84		
Probability of recommending the firm to others, Y_4	0.86		
Probability of purchases the next four weeks, Y_5	0.64		
<i>Repurchase intention</i> ($Y1 - Y5$)		0.907	0.675
I consider the firm to be a serious provider, Y_6	0.93		
I have trust in the firm, Y_7	0.94		
<i>Trust</i> ($Y6 - Y7$)		0.860	0.877

Variables (items/factors)	Outer loadings	Dijkstra-Henseler rhoA	Variance extracted
Satisfied with the products compared to my expectations, Y_8	0.87		
Satisfied with product quality compared to price, Y_9	0.82		
Satisfied with the innovativeness regarding the products, Y_{10}	0.77		
I have never regretted buying products from this firm, Y_{11}	0.76		
Experienced that products from this firm give good results, Y_{12}	0.80		
<i>Satisfaction (Y8 – Y12)</i>		0.869	0.647
Evaluation of delivery speed, X_1	0.83		
Evaluation of response time, X_2	0.87		
Evaluation of service responses, X_3	0.85		
Easy to find what I'm looking for, X_4	0.70		
Easy to return purchased products, X_5	0.71		
<i>Service quality (X1 – X5)</i>		0.850	0.632

The latent variable measures are good. The outer loadings are significant and have values well above 0.70, with only one exception (Y_5 : *Probability of purchase the next four weeks*). Dijkstra-Henseler's rho (rhoA) exceeds the minimum recommended level (0.70) for all the constructs. Additionally, average variance extracted (AVE) for all the concepts is well above the minimum recommended value of 0.50. Discriminant validity (Table A4) is examined by both the Fornell-Larcker criterion (Fornell & Larcker, 1981) and the HTMT_{0.85} criterion with 5,000 bootstrap subsamples (Henseler et al., 2015). Based on the total sample, the correlations of all pairs of latent variables are less than their respective square-rooted VE, which indicates discriminant validity. All HTMT-values are below 0.85, and discriminant validity is thus also confirmed by this conservative HTMT_{0.85} criterion. Another indication of discriminant validity of the concepts is the fact that the model fit is satisfactory in the absence of any cross-loadings and covariance between or within construct error variances.

Table 3.2 shows standardized loadings, variance extracted, and PLS group differences tests of the high and low online community engagement group. In the high engagement group, online community network rating is added as a new latent variable.

Table 3.2: PLS measurement models: High engagement sample (n=115) and low engagement sample (n=108)

Items/Latent variables	Outer loadings		Variance extracted		p-value##
	High engagement	Low engagement	High engagement	Low engagement	Group differences
Probability of future repurchases (Y_1)	0.85	0.89			0.2287
I consider myself as a loyal customer (Y_2)	0.92	0.90			0.2371
The firm is my first choice (Y_3)	0.84	0.85			0.4878
Probability of recommending the firm to others (Y_4)	0.87	0.90			0.2175
Probability of purchases the next four weeks (Y_5)	0.65	0.63			0.3400
<i>Repurchase intention</i> (Y_1 - Y_5)			0.69	0.70	
I consider the firm to be a serious provider (Y_6)	0.95	0.96			0.3700
I have trust in the firm (Y_7)	0.95	0.96			0.3317
<i>Trust</i> (Y_6 - Y_7)			0.90	0.92	
Satisfied with the products compared to my expectations (Y_8)	0.87	0.91			0.1388
Satisfied with product quality compared to price (Y_9)	0.78	0.88			0.0397
Satisfied with the innovativeness regarding the products (Y_{10})	0.76	0.85			0.1324
I have never regretted buying products from this firm (Y_{11})	0.74	0.82			0.0982
Experienced that products from this firm give good results (Y_{12})	0.83	0.82			0.4694
<i>Satisfaction</i> (Y_8 - Y_{12})			0.64	0.73	
Evaluation of delivery speed (X_1)	0.70	0.68			0.4161
Evaluation of response time (X_2)	0.85	0.83			0.3791
Evaluation of service responses (X_3)	0.86	0.85			0.3896
Easy to find what I'm looking for (X_4)	0.85	0.82			0.3307
Easy to return purchased products (X_5)	0.62	0.72			0.1568
<i>Service quality</i> (X_1 - X_5)			0.61	0.61	

Items/Latent variables	Outer loadings		Variance extracted		p-value ^{##}
	High engagement	Low engagement	High engagement	Low engagement	Group differences
It's valuable for me to join the network (X ₆)	0.84				
Responses from network adm. are perceived as thorough and helpful (X ₇)	0.87				
Responses from other users are perceived as thorough and helpful (X ₈)	0.75				
Easy to register as a network user (X ₉)	0.70				
Have met exciting people in the network (X ₁₀)	0.56				
Network rating (X ₆ -X ₁₀)			0.57		

Based on non-parametric PLS Multi-Group Analysis.

As revealed in Table 3.2, only 1 of the 17 indicators (*satisfied with product quality compared to price*) is significantly different in the two sub-samples ($p=0.0397$). All in all, these results indicate both configurational and metric invariance, making a multi-group comparison of the structural model feasible.

Table 3.3 shows mean values of the repurchase intention indicators for the high and the low online community engagement groups, respectively, as well as t-tests for mean and median differences between them.

Table 3.3: Repurchase intention group differences: High and low engagement consumers

	Mean value	Mean difference	Median difference	
	High engagement	Low engagement	p-value	p-value
Probability of future repurchase	6.19	5.90	0.080	0.032
I consider myself a loyal customer	5.77	4.93	0.001	0.001
The firm is my first choice	5.82	5.16	0.002	0.004
Probability of recommending	5.96	5.39	0.002	0.330
Probability of purchases next four weeks	4.63	4.02	0.017	0.001
Repurchase intention (summated scale)	5.93	5.34	0.001	0.013

The mean values for all the repurchase intention indicators are higher in the high engagement sample than in the low engagement sample. For the summated scales,

the mean difference and median difference are significant at the 0.001 and 0.013 levels, respectively. Among the individual indicators, there is only one insignificant mean difference (*probability of future repurchases*) at the 0.08 level, and one insignificant median difference (*probability of recommending*) at the 0.330 level. Overall, high engagement consumers, thus, seem to have significantly higher scores on repurchase intention than low engagement consumers.

3.4.2 Structural models

Table 3.4 shows unstandardized and standardized regression (path) coefficients, standard errors (ordinary and robust), and model fit for the full sample structural loyalty model estimated by single equation moderated multiple OLS regressions and structural equation PLS-path estimation. The OLS results provide both ordinary standard errors and robust standard errors based on bootstrapping. The PLS results provide robust standard errors based on bootstrapping.

Quite similar results are obtained from the single equation moderated OLS and the structural equation moderated PLS. Variance explanations are relatively good. The PLS results indicate R squares of 0.61, 0.55, and 0.35 for repurchase intention, satisfaction, and trust, respectively.

Table 3.4: Structural models (full sample): Moderated OLS and moderated PLS

	Moderated OLS (single equations)		Moderated PLS (structural equations)		
	Unstandard- ized coefficients	Std. errors (bootstrap in parenthesis)	Standard- ized coefficients#	Standardized coefficients #	Std. errors bootstrap
Dep. variable: Repurchase intention					
<i>Constant</i>	-0.836	0.274 (0.301)			
<i>Trust</i>	0.371	0.066 (0.077)	0.274***	0.322***	0.056
<i>Satisfaction</i>	0.444	0.057 (0.068)	0.371***	0.349***	0.053
<i>Service quality</i>	0.245	0.049 (0.052)	0.196***	0.198***	0.042
<i>Community1 (dummy)</i>	0.138	0.091 (0.089)	0.047	0.037	0.025
<i>Trust x Community1^a</i>	0.398	0.143 (0.138)	0.136***	0.118**	0.060
<i>Satisfaction x Community1^a</i>	-0.343	0.130 (0.133)	-0.129**	-0.120**	0.060

	Moderated OLS (single equations)		Moderated PLS (structural equations)		
	Unstandard- ized coefficients	Std. errors (bootstrap in parenthesis)	Standard- ized coefficients#	Standardized coefficients #	Std. errors bootstrap
Dep. variable: Satisfaction					
<i>Constant</i>	0.466	0.230 (0.227)			
<i>Trust</i>	0.738	0.041 (0.049)	0.660***	0.629***	0.049
<i>Service quality</i>	0.083	0.033 (0.040)	0.093**	0.163***	0.048
<i>Community1 (dummy)</i>	0.090	0.076 (0.076)	0.038	0.019	0.021
<i>Trust x Community1^a</i>	-0.174	0.074 (0.076)	-0.073**	-0.060*	0.051
Dep. variable: Trust					
<i>Constant</i>	3.201	0.190 (0.324)			
<i>Service quality</i>	0.547	0.033 (0.054)	0.594***	0.595***	0.042
<i>Community1 (dummy)</i>	0.061	0.084 (0.094)	0.029	0.027	0.029
		Model fit multi- ple regression (single equa- tions):		Model fit PLS structural equations:	
		R ² _{adj.} (Rep. int.) =	0.54	R ² (Rep. int.) =	0.61
		R ² _{adj.} (Sat.) =	0.52	R ² (Sat.) =	0.55
		R ² _{adj.} (Trust) =	0.26	R ² (Trust) =	0.35

Based on bootstrapping with 5,000 samples. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

^a Based on orthogonalized interactions (residual centering).

The hypotheses H1 (satisfaction → repurchase intention), H2 (trust → repurchase intention), H3 (trust → satisfaction), H5 (service quality → satisfaction), and H6 (service quality → trust) are supported. The network community dummy has no significant direct effects on repurchase intentions, trust, or satisfaction. The hypotheses H4a, H4b, and H4c are thus rejected. All the interaction terms are, however, significant. As such, hypotheses H4d (community involvement moderates the link from trust to repurchase intention), H4e (community involvement moderates the link from satisfaction to repurchase intention), and H4f (community involvement moderates the link from trust to satisfaction) are given some preliminary support based on the moderated regressions. With no direct effects of community involvement, a stronger test of moderation effects is, however, possible to perform based on a multi-group comparison.

Table 3.5: Structural models (sub-samples): Multi-Group PLS

	High engagement group (N=115)		Low engagement group (N=108)		p-value ^{##}
	Unstandardized coefficients	Bootstrap std. errors [#]	Standardized coefficients	Bootstrap std. errors [#]	
Structural Paths:					
Trust → Repurchase intention	0.4885 ^{***}	0.1016	0.1314	0.1129	0.0037
Satisfaction → Repurchase intention	0.3142 ^{***}	0.0939	0.5621 ^{***}	0.1035	0.0349
Service Quality → Repurchase intention	0.0422	0.0732	0.2263 ^{***}	0.0810	0.0442
Trust → Satisfaction	0.6257 ^{***}	0.0987	0.7618 ^{***}	0.0596	0.1288
Service Quality → Satisfaction	0.1813 [*]	0.1037	0.0627	0.0633	0.1643
Service Quality → Trust	0.6739 ^{***}	0.0978	0.7226 ^{***}	0.0615	0.3559
Model fit:					
R ² Rep. int. high engagement group: 0.612					
R ² Rep. int. low engagement group: 0.703					
R ² Satisfaction high engagement group: 0.577					
R ² Satisfaction, low engagement group: 0.653					
R ² Trust, high engagement group: 0.454					
R ² Trust, low engagement group: 0.522					

[#] Based on bootstrapping with 5,000 samples. ^{##} Based on non-parametric PLS Multi-Group Analysis.

^{***} $p < 0.01$; ^{**} $p < 0.05$; ^{*} $p < 0.10$

The results from the multi-group comparison in Table 3.5 show that the hypotheses H1, H3, and H6 are supported for both sub-models, while H2 is only supported for the high engagement group and H5 is only supported for the high engagement group at the 10 percent level. There are significant group differences for three of the links – trust → repurchase intention ($p=0.0037$), satisfaction → repurchase intention ($p=0.0349$), and service quality → repurchase intention ($p=0.0442$) – thus strengthening support of hypotheses H4d and H4e. In addition, hypotheses H7a (service quality has a direct effect on repurchase intention when community engagement is low) and H7b (service quality has no direct effect on repurchase intention when community engagement is high) are also supported. On the other hand, hypothesis H4f (community engagement moderates the link from trust to satisfaction) is no longer supported ($p=0.1288$).

An extended version of the high engagement sub-model where *network rating* is included as a new latent variable is shown in Table 3.6. By including this new explanatory variable with links to repurchase intention, trust, and satisfaction, the R squares for satisfaction and trust are both increased to 0.61. For trust, this is a substantial increase in variance explanation (15.6 percent age points). Network rating has no significant direct effect on repurchase intention but significant effects on both satisfaction and trust. As for service quality, this implies that network rating is completely mediated via trust and satisfaction. However, the effect of service quality on satisfaction is now not even significant at the 10% level.

Table 3.6: Structural model (high engagement sample): PLS

	Standardized Coefficients	Std. errors Bootstrap#
Trust → Rep. intention	0.494***	0.107
Satisfaction → Rep. intention	0.323***	0.102
Service Quality → Rep. intention	0.047	0.088
Network rating → Rep. intention	-0.027	0.076
Trust → Satisfaction	0.532***	0.105
Service Quality → Satisfaction	0.122	0.093
Network rating → Satisfaction	0.235***	0.080
Service quality → Trust	0.519***	0.115
Network rating → Trust	0.298***	0.093
Model fit:		
R ² Rep. int.: 0.61		
R ² Satisfaction: 0.61		
R ² Trust: 0.61		

Based on bootstrapping with 5,000 samples. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

3.5 DISCUSSION AND MANAGERIAL IMPLICATIONS

The main reason not to shop online is high risk. In this respect, trust seems to be the preliminary condition to customers' e-commerce participation. Research suggests that trust changes over time, evolving through stages of development (Rosseau, Sitkin, Burt, & Camerer, 1998) based on buyers' observations of honesty, reliability, satisfaction, consistency, and trustworthiness (Biong & Selnes, 1996). Srinivasan et al. (2002) found evidence that evaluation criteria like service quality,

trust, and satisfaction are jointly determined by channel factors and retailer factors. The importance of online community network in relation to trust building and loyalty creation is, however, not assessed to a large extent in the literature so far. Based on this lack of earlier theoretical focus, the following research question was stated in our analysis: How do trust and community network (affiliation) influence e-tail repurchase intention in a more holistic model? A major contribution of the chapter is the simultaneous estimation of direct effects, mediation effects, and moderation effects. The studied context is a Norwegian virtual fitness (nutrition) store. Of thirteen hypotheses connected to the links in Figure 3.1, nine were supported. It is shown that customers who are highly engaged in the web-based community network have significantly higher scores on repurchase intention than low engaged customers, but the degree of engagement does not directly influence the intention to buy. The degree of engagement in the community network, however, moderates the effects that trust and satisfaction have on repurchase intention, increasing the effect of trust and decreasing the effect of satisfaction.

Since shopping on the Internet is perceived to be associated with higher risk, trust has been considered a critical component in an online retailing context (Urban, Farena, & Qualls, 2000). Loyalty towards a specific retailer is of extreme interest to merchants, because high customer acquisition costs are difficult to regain without the commitment and repeat purchasing of the customer (Wallace, Giese, & Johnson, 2004). It should even be more interesting in e-commerce since the Internet's exchange settings are closer to the conception of a perfect market with its possibilities to switch between shops within seconds. This study suggests that trust is a strong driver of satisfaction and e-tail repurchase intention and as such confirms the theory followed by Harris and Goode (2004) and Szymanski and Hise (2000) that trust drives satisfaction. Therefore, online retailers should realize that to build e-loyalty and satisfaction, there has to be a prior development of e-trust. Online businesses have many more hurdles than offline businesses when it comes to establishing trust with their customer base. This means that an online business has to do more than just create a compelling reason to convince people why they should choose them over a competitor. Establishing trust is the key. Shoppers need to believe without a doubt that a business is not just in it for their own profit, but that they care and will take care of their customers. Without having established any sort of trust, there really is no sale. Creating a website that conveys trust to a store can be tricky. There are rarely any answers that are always right for every store or every visitor. There are, however, several factors that seem to have universal appeal to the weary shopper. In an anonymous world where customers cannot examine a product or meet with company reps face-to-face, trust is

much harder to come by. It seems as though a community can potentially build customers' trust and satisfaction, and through them also repurchase intention/loyalty. The reason for this might be that communities are highly effective in facilitating word-of-mouth (Hagel & Armstrong, 1997) and that customers' ability to exchange information and compare experiences can add to customer loyalty (Frank, 1997). Communities also enable individual customers to identify with a larger group (Srinivasan et al., 2002).

One main managerial implication of the findings is that different approaches to nurture customer loyalty are necessary when the firm can distinguish customers according to community network engagement. A high engaged customer's loyalty is best nurtured by efforts to strengthen the trust-building mechanisms. One way of doing this might be through improvements in the community network facility. According to the measurement model for network rating (Table 3.2), the two most important items reflecting this variable are 1) *responses from network administration are perceived as thorough and helpful*, and 2) *it's valuable for me to be in the network*. Managers of e-tail companies should therefore put more effort into developing the network community, and, in particular, to improving the quality of this network with respect to quick and adequate responses to the community members. For low engaged customers, loyalty is best nurtured through the satisfaction channel. Trust has an insignificant direct effect on repurchase intention, but a significant effect mediated by satisfaction. At the same time, however, the customers in this group seem to have less confidence in overall satisfaction, which is indicated by the strong direct effect of service quality on repurchase intention – i.e., service quality effects on repurchase intention are not completely mediated by overall satisfaction. Looking at the measurement model of the satisfaction concept (Table 3.2), it seems that low engaged customers are more price-sensitive in terms of value-for-money than high engaged customers. The item *satisfied with product quality compared to price* has a significantly higher loading in the low engagement group compared to the high engagement group. In order to strengthen satisfaction and thus increase repurchase intention, efforts to increase the perceived value compared to price will be important for customers in this low engagement group.

Caution needs to be taken when generalizing the findings. The discussed results and their implications are obtained from one single study that examined one Internet shop covering a single segment in Norway. Examining whether the validity of the measures and findings hold across other shoppers and specific sites should be investigated. It is likely that other factors not addressed in this study are of importance, and future research should focus on those. The main endogenous variable in this research is repurchase (behavioral) intention. Focusing on conative loyalty

has its advantages; however, future studies might wish to focus on the link between conative and action loyalty. Studying the stability of loyalty, satisfaction, and trust over time might be interesting, and longitudinal research could enhance our understanding of the causality and interrelationship between variables important to customer loyalty in e-commerce.

Another area for future research might be differences between low-loyalty and high-loyalty customers, specifically, the transient route, reflecting that the indirect path from trust to repurchase intentions via satisfaction might have greater impact for non-loyal than for loyal customers. On the other hand, the chronic route, which represents the direct path from trust to repurchase intention, might have a greater impact for loyal than for non-loyal customers.

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APPENDIX 3.1

Table A1 Sample profile

Variable	Percentage
Gender	
Male	76.2%
Female	23.8%
Age	
< 20	14.2%
21-30	42.5%
31-40	29.6%
41-50	11.0%
> 50	2.7%
Education	
Low (secondary school)	6.7%
Middle (high school, apprenticeship)	50.2%
High (university, polytechnic)	43.1%
Training sessions per week	
< 2	8,7%
3	33.4%
4	23.1%
5	20.8%
> 5	14.0%
Favorite form of training	64.2%
Individual training in training studio	12.9%
Group training in training studio	5.2%
Team training (football, basket, etc.)	17.7%
Other individual training	
Main motivation of training	
Physical and mental well-being	56.5%
Health	8.5%
Excitement	6.0%
Physical appearance/look	24.4%
Fun	4.4%
Social	0.2%
Visited community	
No	21.3%
Yes	78.7%
Attended forum	
No	68.5%
Yes	31.5%

Table A2 Statistical metrics of the items (indicators) (n=495); Items with * only in high engagement sample (n=115)

Items	Mean	S.D.	Skew-ness	Kurtosis
*It's valuable for me to join the network (X ₁)	4.99	1.36	-0.50	-0.21
*Answers from network administrator are thorough and helpful (X ₂)	5.52	1.32	-0.84	0.39
*Answers from other network users are thorough and helpful (X ₃)	4.69	1.26	-0.16	-0.15
*It's easy to register as a network user (X ₄)	6.09	1.09	-1.68	3.80
*I have met exciting people in the network (X ₅)	4.53	1.52	-0.18	-0.28
Satisfied with the products compared to my expectations (Y ₁)	5.86	1.13	-1.51	3.54
Satisfied with product quality compared to price (Y ₂)	5.38	1.31	-1.00	1.18
Satisfied with the innovativeness regarding the products (Y ₃)	5.36	1.17	-0.58	0.37
I have never regretted buying products from this firm (Y ₄)	5.92	1.36	-1.56	2.30
I hope that X in the future continues to deliver products that suit me V25 (Y ₅)	6.18	1.08	-1.67	3.62
I consider the firm to be a serious provider (Y ₆)	6.35	0.92	-2.02	6.21
I have experienced that products from this firm give good results (Y ₇)	5.56	1.25	-1.00	1.11
I have trust in the firm (Y ₈)	6.19	1.00	-1.67	3.81
Probability of future repurchases (Y ₉)	6.07	1.22	-1.61	2.76
I consider myself a loyal customer (Y ₁₀)	5.28	1.61	-0.68	-0.39
The firm is my first choice (Y ₁₁)	5.52	1.58	-0.94	0.15
Probability of recommending the firm to others (Y ₁₂)	5.77	1.36	-1.21	1.25
Probability of purchases the next four weeks (Y)	4.49	1.92	-0.31	-0.97
Evaluation of delivery speed (X ₄)	5.89	1.22	-0.99	0.41
Evaluation of response time (X ₅)	5.76	1.24	-0.76	-0.21
Evaluation of service responses V38 (X ₆)	5.89	1.23	-0.99	0.47
It's easy to find what I'm looking for	5.62	1.26	-0.96	0.78
It's easy to return purchased products	4.87	1.23	0.47	-0.22

Table A3 PLS measurement model results: Latent variable correlations. Full sample (n=495).

	Rep. int.	Trust	Satisfaction	Service quality
Rep. int.	1.00			
Trust	0.72	1.00		
Satisfaction	0.70	0.73	1.00	
Service quality	0.59	0.59	0.54	1.00

Table A4 PLS measurement model results: Latent variable correlations. Low engagement sample (n=108).

	Rep. int.	Trust	Satisfaction	Service quality
Rep. int.	1.00			
Trust	0.75	1.00		
Satisfaction	0.81	0.81	1.00	
Service quality	0.67	0.72	0.61	1.00

Table A5 PLS measurement model results: Latent variable correlations. High engagement sample (n=115).

	Rep. int.	Trust	Satisfaction	Service quality	Network rating
Rep. int.	1.00				
Trust	0.75	1.00			
Satisfaction	0.70	0.75	1.00		
Service quality	0.56	0.60	0.60	1.00	
Network rating	0.47	0.57	0.60	0.52	1.00