
Customer loyalty to content-based Web sites: the case of an online health-care service

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Keywords

Internet, Health services, Customer services quality, Trust, Customer loyalty

Abstract

Past e-service research has largely concentrated on customer responses to online retailers. The present study sheds light on the determinants of customer loyalty to a content-based service, a healthcare Web site. Content-based service providers must build a loyal customer base in order to attract advertisers and sponsors. Lack of trust has been one of the most important reasons for consumers not adopting online services involving financial exchanges, but trust appears to be equally important to exchanges that require divulging sensitive information, such as health issues. Results reveal that loyalty to the health site is satisfaction-driven, but that trust is the main antecedent of satisfaction. Need fulfilment, responsiveness, security and technical functionality of the Web site are shown to influence trust. Managerial implications are provided.

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Introduction

Loyal and returning customers are vital to online firms that offer content-based services, since these companies obtain a substantial part of their revenues from third parties, such as advertisers and partners. Content-based service firms face the challenge of creating a sustainable customer base in a market environment where consumers can easily find and evaluate alternative offerings. It is often argued that satisfied customers are more likely to return and eventually form emotional ties with the Web site. It is, however, increasingly difficult for online companies to satisfy and bond their customers, who are demanding ever better information and services, and showing less and less tolerance for malfunctioning Web sites (Reichheld *et al.*, 2000). It has therefore become important to find answers to the question of how customers evaluate content-based services and what the roles of service quality and customer satisfaction are in creating loyalty to service providers.

Service quality and customer satisfaction, which are believed to be the primary drivers of most loyal behavior, have been widely researched in a traditional service context (e.g. Parasuraman *et al.*, 1988; Anderson *et al.*, 1994; Zeithaml *et al.*, 1996), but research concerning the effects of e-service quality and resulting satisfaction is still in its infancy. Some quality assessment tools have been developed for Web sites with purchase features (e.g. Donthu, 2001; Wolfenbarger and Gilly, 2002), but little attention has been paid to content-based online services. Since the service offering and consequently also customer evaluations of content-based service providers' Web sites differ substantially from those of Web merchants, specific research is needed.

Trust has recently been identified as the key to understanding the relationship between customers and online firms, but the precise role and importance of trust in the development of behavioral intentions towards online service providers have remained unclear. Trust, customers' willingness to rely on a service provider (Moorman *et al.*, 1992), reduces perceived risk of using a service (Gambetta, 2000). It can therefore be considered a consequence of positive evaluations of online services and an antecedent of customer loyalty. Customers are unwilling to bond with online services when confidence in the competence and honesty of the provider is lacking. The distance between the service provider and



customers and lack of face-to-face contact appear to make safety issues and trust essential in online interactions. In an online context, however, trust has generally been related to the security of financial transactions. Its potential importance for content-based services, generally not involving financial transactions, also needs to be investigated.

The present paper is structured as follows. First, current research is reviewed and a number of hypotheses are derived with respect to the relationships between e-service quality, trust, satisfaction and loyalty. These are summarised in a theoretical model. Second, the research design is presented and the structural model is tested by means of an empirical study of an online health care service. A presentation and discussion of the results follows. Next, the managerial implications of the findings are discussed. Finally, the limitations of the research and suggestions for future research are presented.

Literature review

Customer loyalty has been defined as “the degree to which a customer exhibits repeat purchasing behavior from a service provider, possesses a positive attitudinal disposition toward the provider, and considers using only this provider when a need for this service arises” (Gremler and Brown, 1996, p. 173). This definition incorporates action loyalty and commitment to repurchase (Oliver, 1999) with affective commitment, i.e. emotional attachment, identification, and involvement (Allen and Meyer, 1990).

Commitment is believed to drive the expansion and enhancement of the relationship (Bendapudi and Berry, 1997) and to decrease the propensity to leave (Ganesh *et al.*, 2000). Loyal customers are more likely to spread positive word-of-mouth (Gremler and Brown, 1999), buy additional services and accept premium prices (Zeithaml *et al.*, 1996). Loyal customers are desirable because they are believed to be less motivated to search for alternatives and to possess a higher resistance to competitors’ blandishments (Dick and Basu, 1994) and to adverse information from experts (Narayandas, 1998). Their tolerance for waiting when the service is temporarily unavailable is also higher (Narayandas, 1998), which is particularly important when an online service is inaccessible due to technical problems.

Customer loyalty has generally been conceptualised as an outcome of the quality-satisfaction-loyalty chain (Anderson and Mittal, 2000; Oliver, 1996; Rust *et al.*, 1995). The various

links in this chain will be discussed separately in the following paragraphs.

The customer satisfaction-loyalty link

Consumer satisfaction is an indicator of company’s past, current and future performance (Anderson *et al.*, 1994) and there is ample evidence for its positive effect on loyalty in traditional services. Satisfying customer needs by delivering superior service quality is claimed to be equally as important online as it is offline (Reichheld *et al.*, 2000; Zeithaml *et al.*, 2002). A study by Shankar *et al.* (2000) even suggests that satisfaction has a stronger impact on loyalty online than offline, possibly due to the high costs of searching for alternative providers. Satisfaction has been defined as a cumulative, attitude-like judgment that is based on customers’ past experiences. It is connected to varying emotional and cognitive states that influence customers’ future behavior towards the company (Stauss and Neuhaus, 1997). Customers’ affective responses to online services, such as their enjoyment, excitement and pleasure in using the service (Lynch *et al.*, 2001; Wolfenbarger and Gilly, 2001), are important to overall customer satisfaction. In line with earlier research (e.g. Oliver, 1996; Oliver *et al.*, 1997; Zins, 2001) we expect that a higher level of customer satisfaction will lead to greater loyalty, and propose that:

H1. Satisfaction with the service provider has a positive impact on loyalty.

Trust

It has been claimed that the development of trust depends on service provider characteristics. Customers form trusting beliefs based on the perceived competence, benevolence and integrity of the provider (Mayer *et al.*, 1995). Trust embodies customers’ beliefs of actually receiving a promised service, and a manifestation of consumers’ “confidence in an exchange partner’s reliability and integrity” (Morgan and Hunt, 1994, p. 23). In order to use the service in the first place, consumers need to have some degree of trust in the provider’s willingness and ability to perform the desired task (Doney and Cannon, 1997). Trust evolves gradually throughout the relationship (Sheaves and Barnes, 1996) as customers gain more experience and find that promises are fulfilled and expectations are met (Urban *et al.*, 2000).

Consumers use different cues to form perceptions of trust. It has been argued that trust can stem from the reputation of the site, information provided to the customer (Zeithaml

et al., 2000), seals of approval (Urban *et al.*, 2000), evidence such as background information about the company (Kaynama and Black, 2000), and the design of the user interface (Roy *et al.*, 2001). Without challenging the importance of reputation and company size as important antecedents of trust (Jarvenpaa *et al.*, 2000; Doney and Cannon, 1997), it should be noted that consumers cannot use these cues for many new and exclusive e-service providers. Instead, they will probably develop trust based on cues from the Web site, past experiences of service quality, and possibly recommendations from others. This brings us to the problem of the conceptualisation of trust.

In traditional service research (e.g. Parasuraman *et al.*, 1988), consumer trust in services has been conceptualised as a service quality dimension among others. Contrary to these studies, we prefer to conceptualise trust as a mediator between service quality dimensions and customer satisfaction. This is in line with Sharma and Patterson (1999), who claim that trust in services is built up when customers continuously experience high levels of process and outcome quality. Several authors have suggested that antecedents such as safety, credibility, security (Selnes, 1998; Ravald and Grönroos, 1996), and site usability (Roy *et al.*, 2001) precede trust, which also supports the conceptualisation of trust as a consequence of service quality and an antecedent of satisfaction. Hence, we expect:

H2. Trust mediates the impact of service quality on satisfaction.

E-service quality

The importance of service quality as an antecedent of customer satisfaction and ultimately customer loyalty has been widely acknowledged (Zeithaml *et al.*, 1996; Rust *et al.*, 1995; Anderson *et al.*, 1994). Electronic service quality has previously been defined as “the extent to which a Web site facilitates efficient and effective shopping, purchasing, and delivery” (Zeithaml *et al.*, 2000, p. 11). This definition appears to be too specific to electronic retailing. In order to capture electronic services in a broader sense, electronic service quality should cover the complete service offering and not exclusively transaction-specific elements. In the case of Web sites intended for informational, promotional or supporting purposes, e-service quality could be defined as “the consumer’s evaluation of process and outcome quality of the interaction with a service provider’s electronic channels”.

The various dimensions of online service quality remain relatively uncharted. Exploratory studies have suggested a varying number of dimensions,

ranging from three to eleven, depending on the level of abstraction (Kaynama and Black, 2000; Srinivasan *et al.*, 2002; van Riel *et al.*, 2001; Wolfenbarger and Gilly, 2001; Zeithaml *et al.*, 2000). The dimensions overlap and are for the most part embedded in a retailing context. We identified four dimensions that appear to be important to all online services:

- (1) The quality of the user interface.
- (2) Responsiveness.
- (3) Need fulfilment.
- (4) Security.

An in-depth discussion of these quality determinants is given below.

E-quality determinants

The first quality determinant is the user interface (van Riel *et al.*, 2001), which reflects the quality of the service delivery mode, i.e. the channel through which consumers are in contact with the service provider. The quality of the user interface is expected to affect trust directly, since it provides physical evidence of the service provider’s competence as well as facilitating effortless use of the service. The user interface has been represented alternatively as consisting of one dimension (Grönroos *et al.*, 2000) and of several sub-dimensions (Donthu, 2001; Zeithaml *et al.*, 2000; Kaynama and Black, 2000). It captures aspects such as overall Web site design (Kaynama and Black, 2000), including layout (Srinivasan *et al.*, 2002), ease of navigation (Kaynama and Black, 2000; Zeithaml *et al.*, 2000) ease of use (Dabholkar, 1996; Srinivasan *et al.*, 2002) and site aesthetics (Zeithaml *et al.*, 2000). Roy *et al.* (2001) suggest that ease of navigation, interface design and user guidance affect consumer establishment of trust.

In this study, the quality of the user interface is operationalised as the technical functionality of the site and its design. These are signs of the service provider’s competence, and therefore induce trust. In general, the user interface offers tangible cues for customers, on which they can base their assessment of the provider’s trustworthiness. We therefore propose:

H3. User interface quality has a direct positive impact on trust.

Responsiveness represents the service provider’s ability to respond quickly to requests and suggestions, and to provide assistance for customers in case of problems (Zeithaml *et al.*, 2000). Customers have identified a fast response as an element of high-quality service (Voss, 2000), but in practice many companies fail on this dimension (Kaynama and Black, 2000). Here, responsiveness is defined as the extent to which customer feedback is taken into consideration, and the promptness of reply. Since responsiveness

reflects customers' perceptions of the service provider's ability and willingness to respond to customer needs, it is also expected to impact trust. As a consequence, we expect:

H4. Responsiveness has a positive impact on trust.

The degree to which an individual customer's preferences can be met is an essential part of online quality, and is generally called "customisation" (e.g. Zeithaml *et al.*, 2000). This dimension is based on interactivity, or "the ability to address an individual and the ability to gather and remember the response of that individual" (Deighton, 1996, p. 151), which makes it possible to readdress consumers while taking prior responses into account. One of the advantages of electronic services is that companies can create individual customer profiles and develop individualised services based on customers' needs and wants (Franzak *et al.*, 2001). However, there are sites, such as healthcare services, that have to guarantee customer anonymity, and therefore have to develop their services based on anonymous feedback and customer surveys. The degree to which customers feel that the site is targeted at them and the extent to which the service fulfils their personal needs is closely related to the benefits of customisation.

Need fulfilment is likely to affect trust since it reflects the service providers' ability to understand the customer's underlying needs and wants regarding healthcare services. We therefore expect:

H5. Need fulfilment has a positive impact on trust.

One of the most critical customer concerns is the issue of security, i.e. the extent to which customers believe the site is safe to use and that personal information is protected (Zeithaml *et al.*, 2000). Non-transactional privacy concerns such as Web cookies or unsolicited e-mail may hinder consumers' use of Web sites (Korgaonkar and Wolin, 1999). Although security is sometimes equated with trust (e.g. Reichheld *et al.*, 2000), it can also be assumed to be a distinct dimension. Assessments of trust are not exclusively based on security, which includes information about security policies and protection of information. Since the site studied guarantees complete anonymity, security is based on the consumers' perceptions of the security policies and their beliefs that they can safely use the site without being tracked down. Security is directly related to trust since it signals the service provider's integrity. We thus hypothesise:

H6. Security has a positive impact on trust.

Figure 1 summarises the hypothesised model. Four online service quality dimensions are considered in the study:

- (1) The user interface.
- (2) Service responsiveness.
- (3) Customer need fulfilment.
- (4) Online security.

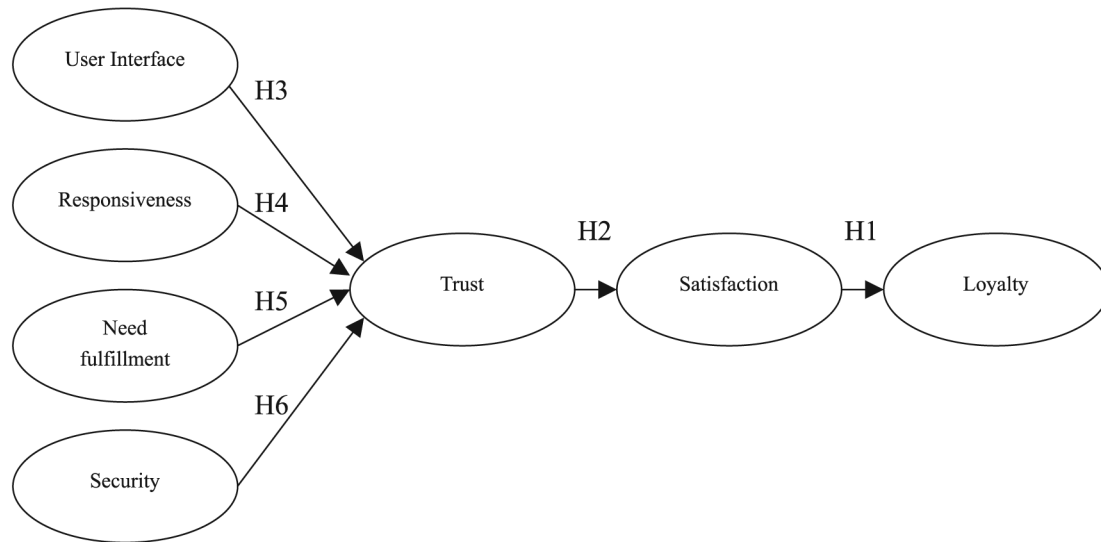
Hypotheses are marked in the model for elucidation.

Empirical study

It was decided to investigate empirically the roles of service quality, trust and satisfaction as determinants of customer loyalty to an online health care service. The market for electronic healthcare services, or e-health, is significant, and is likely to grow as the Internet generation ages and the average age of the population increases. In many parts of the world it is already an extremely popular service: for example, in the USA, up to 80 per cent of Internet users had sought healthcare-related information on the Web by the beginning of 2002 (Taylor, 2002). A broad array of health-related services have become available to customers, such as medical databases, chat rooms, online communication with doctors, and even combinations of online and traditional healthcare in the form of remote disease monitoring. These Web sites provide basic information and help of a kind that may not easily be found elsewhere. For example, discussion groups give people emotional support from others who are experiencing or have experienced similar problems. Although some of the services are fee-based, most are offered free of charge, and providers rely on sponsors and advertisers for financing.

Health-care portal background

The study was conducted among the current users of a European online healthcare portal, hereafter referred to as "Net Clinic". Complete anonymity is guaranteed to the customers of the site, which implies that no private information is collected. The site is one of the most popular health-related sites in its market, and is largely dependent on advertisers and partners for its income. The portal started operating in 1995, and now offers a number of free services as well as fee-based medical advice. The main services on the site are "online doctors" and a related search engine for retrieving medical information and advice, discussion groups and articles. The site also offers a large number of other health-related services. Consumers were asked to evaluate the site as a whole since they use a wide spectrum of services to varying extents.

Figure 1 Proposed model, illustrating antecedents of e-satisfaction and loyalty

Measures

A questionnaire was designed to capture online service quality dimensions, trust, customer satisfaction and loyalty. Questions relating to demographics were kept to a minimum and only age, gender and usage patterns were asked for. Because no validated measures for online service quality were available at the time of the study, questions were adapted from a variety of sources. Seven-point Likert-type scales (1 = totally disagree to 7 = totally agree) were used for all items.

The user interface (UI) quality scale consisted of six items, e.g. "information is displayed in reasonable chunks" and "the site works reliably". Responsiveness (RES) was measured using four items, including "Net Clinic is interested in customer feedback" and "Net Clinic responds in a timely manner to feedback". Security (SEC) was measured via three questions, e.g. "I am confident that Net Clinic does not collect any information about me". Need fulfilment (NEED) included three items, e.g. "Net Clinic meets my personal needs". Trust (TRUST) was measured using two items, including "Net Clinic is a trustworthy medical online centre". Consumer satisfaction (SAT) was measured with three items. As proposed by Oliver (1996), these included enjoyment, dissatisfaction and overall satisfaction.

Customer loyalty is most frequently operationalised as intended purchase behavior, and is sometimes combined with an attitudinal measurement (e.g. Gremler and Brown, 1996; Jacoby and Chestnut, 1978). Several authors have pointed out the difficulties of measuring loyalty as purchase intention (e.g. Zins, 2001; De Ruyter *et al.*, 1998), and have suggested that attitudinal

measures, such as preference for the service provider (e.g. Zins, 2001; De Ruyter *et al.*, 1998) and willingness to spread positive word-of-mouth (Yu and Dean, 2001; Andreassen and Lindestad, 1998; Zeithaml *et al.*, 1996), should be included. In healthcare services, attitudinal measures may be particularly appropriate since some customers use the Web site sporadically but are nevertheless loyal when the need arises, whereas other consumers seek daily support from discussion groups. Hence, consumers with very different repeat visit patterns may be equally loyal to the service provider in the sense that they prefer it to alternative sites when the need arises. Temporal use makes loyalty time-bound, and may reduce the reliability of behavioral intentions as the only loyalty measure. Loyalty (LOY) and other behavioral outcomes were thus measured using six items (e.g. De Ruyter *et al.*, 1998; Zeithaml *et al.*, 1996), including behavioral intentions, preference for the service provider and positive word-of-mouth.

Data collection

Data were collected using an online survey. A pop-up window invited all visitors during four days in June 2001 to participate in the study. The study generated 421 usable responses, reflecting a response rate of 43 per cent of those who opened the survey, or 6 per cent of all visitors. The relatively low response rate can be explained partially by the fact that customers mainly use the service during office hours, and partially by the lack of incentive. A survey on the Web site was, however, the only possible data collection method since the site does not collect personal information about its visitors.

Most of the respondents were women, constituting 93 per cent of the sample. This gender profile is consistent with previous studies conducted on the site. The respondents had extensive experience of using the healthcare portal. More than half of the respondents (56 per cent) had used the services for more than a year, and 31 per cent had used them for between three months and a year. The remaining 13 per cent had used the service for less than three months.

Measurement models

Exploratory and confirmatory factor analyses were performed on the data. A two-step approach was used to assess the validity of the measurement models. In the first step, the measurement model was subjected to an exploratory factor analysis (Varimax rotation) and reliability analysis (coefficient α). This procedure was aimed at refining the scale and assessing the unidimensionality of the latent variables. Items that failed to load on a distinct dimension or that did not correlate highly with other items measuring the same construct were deleted. The factor structure was consistent with the suggested constructs, except that the user interface resulted in two dimensions instead of the expected single dimension. The first dimension includes ease of retrieving information and display of information, whereas the second dimension includes technical reliability and how quickly the pages download. The analysis also indicated that behavioral intentions should be excluded from the loyalty construct, leaving consumer preferences and positive word-of-mouth to make up the construct.

In the next step, a confirmatory factor analysis (CFA) was performed on the retained variables in order to assess whether the purified scale reliably measured the latent factors. CFA of the measurement model yielded a comparative fit index (CFI) of 0.99 ($\chi^2 = 32.32$, $df = 25$, $p = 0.15$), indicating an excellent fit. In the resulting factor structure the two items with the highest loadings were retained for each latent construct (Eriksson, 2002). The estimated pattern coefficients on the posited constructs were significant (Anderson and Gerbing, 1988), which indicates convergent validity. Furthermore, all measures except security (estimate 0.55) had factor estimates above 0.60 (all t -values > 2.00) on their suggested latent constructs, which is the minimum level at which convergent validity can be accepted (Bagozzi and Yi, 1988). A test for discriminant validity was also supported, since none of the confidence intervals for the constructs exceeded 1 (Eriksson, 2002; Anderson and Gerbing, 1988).

A CFA corroborated the two-dimensional structure of the user interface, which was found in the exploratory factor analysis. The user interface dimensions were named "usability" and "technical functionality". "Usability" relates to how well the site is structured, and includes information display and ease of finding information. "Technical functionality" measures how reliable the site is technically and whether the site downloads quickly. Results from the CFA on the exogenous variables are reported in Table I.

The CFA on the endogenous variables (see Table II) also indicates a good model fit ($\chi^2 = 15.96$, $df = 6$, $p = 0.01$). Trust included providing evidence of high-quality services and trustworthiness. Retained satisfaction items were overall satisfaction and customer enjoyment of using the service. Loyalty measures consisted of preference for the service provider and past positive word-of-mouth behavior. A separate analysis confirmed the need to exclude behavioral intentions from the loyalty construct. The word-of-mouth factor estimate was significant (t value = 8.35), but relatively low (0.45), which most likely reflects customers' reluctance to discuss all types of private, healthcare-related issues with others. The study proceeded by testing the hypotheses with a structural model.

Findings

The hypothesised relationships proposed in Figure 1 were tested using LISREL 8.3 with the maximum likelihood methodology. The findings are reported in Table III. The final model (depicted in Figure 2) includes two changes compared to the proposed model: one path was added (need fulfilment \rightarrow satisfaction) and one parameter was deleted from the model. A direct path between need fulfilment and satisfaction was added, based on a Lagrange multiplier test in LISREL. Also, earlier research has shown that need fulfilment reflects the match between customer requirements and product (Ostrom and Iacobucci, 1995) and reduces the customer's need to search for alternative service providers, thus resulting in satisfaction with the online service. This supports the existence of a direct path between need fulfilment and satisfaction. Furthermore, UI usability was removed from the model, since it failed to affect any of the endogenous variables. Earlier research also indicates that most interface elements do not build trust, but may evoke mistrust if they do not satisfy customers (Riegelsberger and Sasse, 2001). The structural model fit to the data was acceptable. The χ^2 value was significant ($\chi^2 = 94.57$, $df = 64$, $p < 0.01$), but since the χ^2 test is sensitive to sample size (the likelihood of getting a

Table I Results of confirmatory factor analysis (CFA) for quality determinants (exogenous variables)

Item	UI usability	UI technical functionality	Responsiveness	Need fulfilment	Security
1	0.75 (14.91)				
2	0.76 (15.03)				
3		0.86 (16.00)			
4		0.83 (15.59)			
5			0.82 (17.61)		
6			0.79 (16.77)		
7				0.78 (16.34)	
8				0.77 (16.14)	
9					0.55 (9.15)
10					0.77 (11.04)
χ^2	32.32				
df	25				
GFI	0.98				
AGFI	0.97				
RMSEA	0.026				

Note: Standardised factor estimates with corresponding *t*-values in parentheses

Table II Results of confirmatory factor analysis (CFA) for dependent variables (endogenous variables)

Item	Trust	Satisfaction	Loyalty
1	0.87 (21.54)		
2	0.87 (21.50)		
3		0.97 (24.95)	
4		0.76 (17.62)	
5			0.86 (12.87)
6			0.45 (8.35)
χ^2	15.96		
df	6		
GFI	0.99		
AGFI	0.96		
RMSEA	0.063		

Note: Standardised factor estimates with corresponding *t*-values in parentheses

Table III Proposed structural model estimation results

Hypothesis	Path	Result
H1	SAT→LOY	Supported
H2	TRUST→SAT	Supported
H3	UI→TRUST	Partially supported UI technical functionality(trust)
H4	RES→TRUST	
H5	NEED→TRUST	
H6	SEC→TRUST	

χ^2
df= 64

CFI = 0.99

GFI = 0.97

AGFI = 0.95

RMSEA = 0.034

Notes: This solution includes one added path, i.e. NEED → SAT; one parameter, i.e. UI usability, was deleted; UI = user interface; RES = responsiveness; NEED = need fulfilment; SEC = security; TRUST = trust; SAT = satisfaction; LOY = loyalty; CFI = comparative fit index; GFI = goodness of fit index; AGFI = adjusted goodness of fit index; RMSEA = root mean square error of approximation

non-significant value reduces when the sample size grows), several other fit indices have been proposed.

The χ^2 /degrees of freedom ratio for the structural model is less than the suggested value of 2 (Challagalla and Shervani, 1996). The goodness of fit index (GFI = 0.97) exceeds the suggested value of 0.90 (Kelloway, 1998), and at 0.034 the root mean square error of approximation (RMSEA) is below the threshold of 0.05, indicating a very good fit to the data (Steiger, 1990). Furthermore, other fit indices are at acceptable levels (AGFI = 0.95, NFI = 0.97, CFI = 0.99, RMR = 0.070).

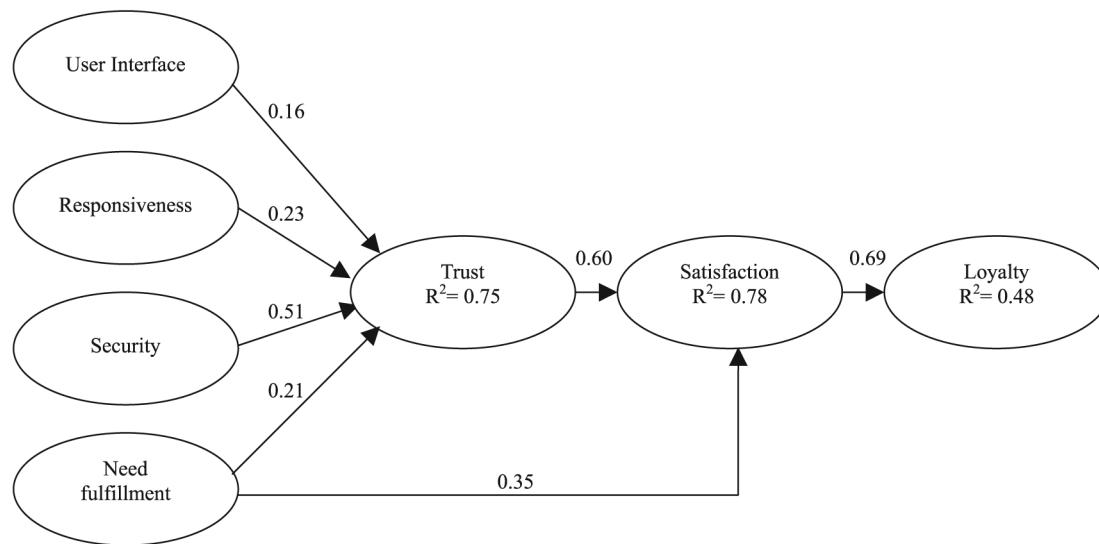
The proposed model explains 48 per cent of the variance of the loyalty construct. Trust mediates quality determinants ($R^2 = 0.75$), supporting H2. Responsiveness (0.23), need fulfilment (0.21), security (0.51) and to a lesser degree UI technical functionality (0.16) have a positive impact on perceived trust. Trust mediates fully the impact of responsiveness, security and UI technical functionality on satisfaction. Satisfaction ($R^2 = 0.78$) is determined mainly by trust (factor estimate = 0.60) but also by need fulfilment (factor estimate = 0.35). Furthermore, the only determinant with a direct impact on loyalty is satisfaction, with a factor estimate of 0.69 ($R^2 = 0.48$).

In short, H1, H2, H4, H5 and H6 were supported and H3 was partly supported, since only technical functionality of the user interface had an impact on trust.

Model testing

In structural modeling, it is strongly advisable to compare the model fit of the suggested model to competing and theoretically valid models

Figure 2 Final structural model



(Kelloway, 1998). Another plausible model, based on the literature, would be one in which trust is one of the quality determinants instead of being a mediator (Parasuraman *et al.*, 1988). As the rival alternative model is not nested within the proposed model, the models can be compared with the help of parsimonious fit indices (Kelloway, 1998). Although the model fit of the rival model is acceptable ($\chi^2 = 92.45$, $df = 61$, $p < 0.01$), both PNFI and PGFI are slightly higher for the proposed model (PNFI = 0.68, PGFI = 0.59) compared to the rival model (PNFI = 0.65, PGFI = 0.56). Furthermore, the rival model loses in explanatory power, because only need fulfilment and trust affect satisfaction, whereas other quality determinants remain insignificant. We therefore believe that the proposed model is a better representation of the antecedents of satisfaction and loyalty.

Conclusion

Our findings strongly support the conceptualisation of trust as an important mediating factor in building customer loyalty in a content-based services context, such as an online healthcare service provider. Trust was found to be the strongest predictor of customer satisfaction, mediating the effect of online quality. It is based on what customers experience, and therefore the result of a complex evaluation process that cannot be controlled without integrating all aspects of service quality. This seems logical, since trust reflects customers' overall assessment of service provider' ability, benevolence and integrity (Lee and Turban, 2001; Mayer *et al.*, 1995), while

service quality dimensions function as cues to these service provider characteristics. Trust, according to Gambetta (2000), is predicated on the lack of contrary evidence rather than on evidence, which means that avoiding quality lapses may be even more important than offering high quality. Furthermore, it appears natural that trust enhances satisfaction, since trusting a service provider means that customers believe they will receive the promised service and experience a reduced level of risk. Since trust is based on the overall quality of the site, managing all quality dimensions – need fulfilment, security, responsiveness, and the Web site's technical functionality – is crucial for loyalty.

Need fulfilment

Need fulfilment is a strong predictor of trust and satisfaction. This is not surprising since it measures the degree to which customer requirements are catered for. Service customisation has often been limited to elaborate technical systems that produce individualised web pages and personal service. However, the present study demonstrates that perceived customisation is more than a result of applying technological tools. When customers feel that they are a part of the company's target group and that their needs are being fulfilled, their satisfaction will increase. This emphasises the importance of customer orientation and the implementation of segmentation in customer acquisition and relationship maintenance. The better companies are able to identify and target customers who have intrinsic needs the service can fulfill, the more likely it is that the customers acquired will remain loyal.

Security

Security, in the form of keeping customers safe from an invasion of their privacy, affects trust and satisfaction. If companies wish to maintain customer trust, they need to keep their promises regarding privacy. Since security is closely related to trust, violations of security norms may backfire in terms of losing customers and negative word-of-mouth. Assuring security may be especially important to services that require customers to share personal information with the service provider in order to receive the required services, especially when the associated risks are high. Companies should also carefully weigh the benefits of customisation allowed by data collection against psychological costs to customers. Unnecessary gathering of private data may frighten customers away. Customers should at least be allowed to opt out.

Responsiveness

A quick response to requests is likely to increase perceived convenience and diminish uncertainty, and is an important way for companies to show that they are customer-oriented and act benevolently toward customers. Therefore, it affects trust. Understanding customer requirements and developing the service based on feedback enhances service satisfaction. For the focal service, it could mean adding new discussion groups on request and answering customer feedback promptly.

User interface

The technical functionality of the user interface, which signals technical reliability and enables use of the site, had a smaller impact on trust. Technical functionality of a Web site makes use of the service effortless, and the small positive impact may depend on tolerance zones. Whereas low technical functionality evokes mistrust, high functionality often has very little impact (Riegelsberger and Sasse, 2001). Moreover, our findings somewhat surprisingly suggest that the level of a Web site's usability has no impact whatsoever on trust, satisfaction or loyalty. Previous research has highlighted the importance of information retrieval (Voss, 2000; Roy *et al.*, 2001), and even postulated that Web site design is the most important predictor of loyalty (Wolfinger and Gilly, 2002). However, different studies are not directly comparable due to different conceptualisations. User interface usability may be important when making the first decisions on whether to return to the site or not, while its importance decreases as customers learn to use the site. Furthermore, usability along with technical functionality, is likely to reduce the amount of time

and effort required to perform the service, which might be of substantial importance for convenience-driven Internet users (Wolfinger and Gilly, 2001; Donthu and Garcia, 1999). Technical malfunctions may also have a larger impact on trust and satisfaction than a well-functioning site. The effect of distrust on pre-purchase intentions is presumed to be greater than the presence of trust (Singh and Sirdeshmukh, 2000). Furthermore, in previous studies, Web site quality has been a significant predictor of loyalty for sites selling high-touch goods, whereas it has been of lesser importance for low-touch goods (Lynch *et al.*, 2001). To a pure e-service site that provides information, site quality may be less important than to an online retailer selling high-touch products.

Managerial implications

Our findings have several implications for managers. First, customer perceptions of a service provider's trustworthiness are an important indicator of customer loyalty and can be used to monitor changes in customer attitudes. Second, service providers have to cultivate trust by offering high-quality services and communicating security and responsiveness as a part of a successful customer relationship management strategy. Companies should also regulate their partners' and advertisers' actions and ensure consistent privacy and security policies in order to protect their own reputation. Changing security policies may also be fatal, as it can evoke violent customer reactions. Third, if trust is a higher-level construct, as this study shows, service quality studies need to be restructured to capture the complex nature of trust. This also has an important implication for research. Online, the service quality-satisfaction-loyalty link may not be as unequivocal, and new, more innovative ways of studying antecedents of loyalty are required. Fourth, since the role of trust was paramount in this study, we expect it to play a similar role in other critical services such as financial advising, banking and one-off services (e.g. bridal services). For these services, assuring customers of the service provider's competence, benevolence and integrity can be achieved, at least partly, with high service quality.

Limitations of the study and future research directions

The model presented here was tested on a healthcare Web site, but the importance of the

different determinants of satisfaction and retention may depend on the type of service and criticality of the purchase situation (Ostrom and Iacobucci, 1995). Furthermore, the asymmetric impact (e.g. Anderson and Mittal, 2000) of different quality determinants on satisfaction and loyalty could not be measured due to a positivity bias in the data, which is a common problem in satisfaction studies with samples relating to the evaluation of only one company. It would, however, be fruitful to study whether such asymmetric effects exist online. Therefore, future studies should strive to collect data consisting of a wider spectrum of service experiences. The issue of Web site usability should also be studied further. Finally, the relationship between customer loyalty and Web site productivity should be studied.

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Executive summary and implications for managers and executives

This summary has been provided to allow managers and executives a rapid appreciation of the content of this article. Those with a particular interest in the topic covered may then read the article in toto to take advantage of the more comprehensive description of the research undertaken and its results to get the full benefit of the material present.

Past e-service research has largely concentrated on customer responses to online retailers. Gummerus *et al.*, examine what determines customer loyalty to a content-based service, a health-care Web site. Content-based service providers must build a loyal

customer base in order to attract advertisers and sponsors.

The importance of trust

Lack of trust has been considered among the most important reasons for customers not to adopt online services involving financial exchanges.

Trust appears to be equally important to exchanges that require divulging sensitive information, such as health issues.

The study by Gummerus *et al.* reveals that, as in traditional services, loyalty to the health site is driven by satisfaction, which is an indicator of the company's past, current and future performance. However, trust is the strongest predictor of customer satisfaction, mediating the effect of online quality. It is based on what customers experience, and therefore the result of a complex evaluation process that cannot be controlled without integrating all aspects of service quality. Since trust is based on the overall quality of the site, managing all quality dimensions – need fulfilment, security, responsiveness and the Web site's technical functionality – is crucial for loyalty.

Need fulfilment

Need fulfilment – the degree to which customer requirements are catered for – is a strong predictor of trust and satisfaction. Service customization has often been limited to elaborate technical systems that produce individualized Web pages and personal service. Gummerus *et al.*, however, demonstrate that perceived customization is more than a result of applying technological tools. When customers feel that they are part of the company's target group and that their needs are being fulfilled, their satisfaction will increase. The better companies are able to identify and target customers who have intrinsic needs that the service can fulfil, the more likely it is that the acquired customers will remain loyal.

Security

Security, in the form of keeping customers safe from an invasion of their privacy, affects trust and satisfaction. Ensuring security may be especially important to services that require customers to share personal information with the service provider in order to receive the required services, especially when the associated risks are high. Firms should take care not to frighten customers away by unnecessarily gathering private information. Customers should at least be allowed to opt out.

Responsiveness

Consumers are more likely to trust a company that responds quickly to their requests and takes their feedback into consideration. Firms should strive to understand customer requirements and develop the service based on feedback – perhaps gathered through online discussion groups – in order to enhance satisfaction.

The Web site's technical functionality

Gummerus *et al.* put forward the view that the quality of the user interface is operationalized as the technical functionality of the site and its design. In general, the user interface offers tangible clues for customers, on which they can base their assessment of the provider's trustworthiness.

The research demonstrates that the technical functionality of the company Web site, which can reduce the effort involved in using the service, affects trust, but to a lesser extent than need fulfilment, security and responsiveness. Previous researchers have argued that, whereas low functionality evokes mistrust, high functionality often has little impact.

Moreover, in the context of the health-care company, the level of the Web site's usability had no impact on trust, satisfaction or loyalty. Usability may be important when the consumer first decides whether or not to return to the site, but its importance may decrease as clients learn to use the Web site.

Conclusions

Customer perceptions of a service provider's trustworthiness are an important indicator of customer loyalty and can be used to monitor changes in customer attitudes.

Service providers must cultivate trust through offering high-quality services and communicating security and responsiveness as part of their customer-relationship management strategy. Companies should also regulate their partners' and advertisers' actions and ensure consistent privacy and security policies in order to protect their own reputation.

(A précis of the article "Customer loyalty to content-based Web sites: the case of an online health-care service". Supplied by Marketing Consultants for Emerald.)