



International Journal of Electronic Business

ISSN online: 1741-5063 - ISSN print: 1470-6067

<https://www.inderscience.com/ijeb>

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DOI: [10.1504/IJEB.2022.10047945](https://doi.org/10.1504/IJEB.2022.10047945)

Article History:

Received: 10 December 2020
Accepted: 12 January 2022
Published online: 07 December 2022

The online stickiness circumstances in electronic retailing: website quality, perceived risk, and perceived value

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Abstract: The purpose of this article is to examine the impact of website quality, perceived risk, and perceived value on website stickiness. A questionnaire was used to collect data. The questionnaire was completed and collected by 299 Iranian consumers who use e-retailers for their purchases. The reliability of the questionnaire was assessed and confirmed by Cronbach's alpha coefficient and CR. Structural equation modelling was used for data analysis. Research findings showed that perceived value and website quality, as well as all five dimensions of website quality (content quality, website design, privacy/security, customer service and reliability), had a positive and significant impact on stickiness. Perceived risk also has a significant and negative impact on stickiness. The findings showed that the website quality had a significant and negative impact on the perceived risk. The results showed that the quality of the website had a positive and significant impact on the perceived value.

Keywords: stickiness; website quality; perceived risk; perceived value; electronic retailing.

Reference to this paper should be made as follows: Monfared, A.R.K., Barootkoob, M., Sabokro, M., Keshavarz, M. and Malmiri, M.M. (2023) 'The online stickiness circumstances in electronic retailing: website quality, perceived risk, and perceived value', *Int. J. Electronic Business*, Vol. 18, No. 1, pp.51–76.

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1 Introduction

Online businesses are developed around the world and every business is trying to take advantage of the merits of the virtual environment (Hänninen, 2019). In recent years, all retailers have been moving towards online selling because it offers numerous benefits such as cost savings, time savings, and shopping from anywhere (Ijaz et al., 2016). Online retailing companies provide their products by using the website to generate revenue and produce a high-value database that can leverage a lot of consumers (Steven et al., 2012). In short, website stickiness refers to the amount of users' attention to a website over time (Friedrich et al., 2019). On sticky websites, consumers typically spend more time on the website and interact more with the website, thereby, the likelihood of purchasing and customers' loyalty will increase (Lin et al., 2010). Therefore, it is important for online businesses on how to increase their website stickiness (Li et al., 2006).

Website design, reliability, customer service, and security/privacy are attractive features that influence consumer's perception on online shopping (Prasath and Durga, 2016). Designing an influential e-commerce website that attracts and retains consumers is a major challenge for online businesses (King et al., 2016). In competitive online environments, consumers can easily obtain product information, compare prices and refer to another website with just a few clicks (Brown et al., 2003; Vakulenko et al., 2019). This condition has made it difficult for sellers to maintain the consumers in their websites for online businesses (Cao et al., 2005; Monfared et al., 2021). In such environments, website stickiness is considered as an important factor for the success of e-commerce websites (Alfian et al., 2019). In addition to the website quality, perceived risk is one of the factors that can influence the website stickiness. For example, website design is a very critical tool that grabs the attention of the customer, as it is an atmospheric element that is displayed on the website (Anwar et al., 2020). Ijaz and Rhee (2018) found that perceived risk had a negative impact on consumers' attitudes and online shopping intention. Perceived risk is defined as the subjective expectations of loss and plays an important role in online shopping, as consumers become insecure about their purchasing decisions. This greater understanding of risk seems to come from the online shopping scenario. Consumers may have little confidence in the products to be viewed on the website because consumers have no direct contact with the purchased goods (Nepomuceno et al., 2014). In addition, the perceived value of the website can play an important role in website stickiness. e-shopping values refer to the perceived benefits of online trading (Wu et al., 2014). As the maximisation theory of the classics shows, people, according to their evaluations of all options, justify the potential gains and losses compared to the reference point and, then, opt for the highest benefit alternative (Chen and Lin, 2018). Gaining value is a key goal for consumers in online shopping, and the value of e-shopping is crucial to a successful online transaction. Research has shown that e-shopping value determines the intention to shop online (To et al., 2007).

The purpose of this study was to investigate the impact of website quality on website stickiness through perceived risk variables and perceived value in e-retailing in Iran. There are many online retailers in Iran, some of which have a large number of users and a high daily transaction volume. So, there is fierce competition between these electronic retailers in attracting and retaining customers. As a result, the attention of these online businesses to discussing the website stickiness and identifying the factors that affect it can help to create a competitive advantage for them.

2 Review of related literature

Website stickiness is defined as the ability of websites to design and maintain customers (Zott et al., 2000). Stickiness is defined as an amount of time that a customer spends on an electronic retail website, whether in one visit or several visits (Chen et al., 2019). Stickiness is defined as the ability of a website to motivate online customers to stay or return to the website (Effertz et al., 2018). It is usually measured as the repetition or frequency of visiting the website. Stickiness is the level of the expected value of users when they visit a site. In other words, if website users feel that a website meets their expectations and provides enjoyable experiences, they are more likely to visit the site repeatedly (Kim et al., 2015). Website stickiness refers to a mental and dependent behaviour approach that consumers consistently use on a website to purchase products or services (Liu et al., 2017). Li et al. (2006) argue for a stickiness approach from a relational perspective that users do not separate the website from the organisation providing it and recognise it as representative of the organisation. Therefore, continuous communication with the website results in a commitment and trust to the website. Hsu and Liao (2014) state that a website is sticky when a user visits it repeatedly, spends more time than a regular user on a website, and delves deeper than other users. A Longer visits can increase user engagement and it gives users more time to complete purchase transactions (Huang and Lin, 2011). A sticky website is critical to the success of a web server because users will not be redirected to other providers (Hsu and Liao, 2014). Website stickiness can encourage consumers to interact more with other members of the online community and with the company (Sigala, 2003).

Website quality is one of the factors that can affect stickiness. Since 1990, the development of web technology has grown rapidly, and a large number of websites that distribute information to internet users have faced major problems with their audience. Therefore, companies paid more attention to their website quality and this became more popular among researchers (Mangal and Ganbolor, 2019). The website quality is difficult to define because it reflects a multi-dimensional structural concept (Hasan, 2016). The website quality has been a topic of interest to researchers and experts in various sectors over the past two decades (Ecer, 2014). Different dimensions have been proposed by researchers for the website quality. In this study, the website quality was evaluated with five dimensions of content quality, website design, customer service, security and privacy, and reliability.

- **Content quality:** Generally, content refers to the information and features available on the website (Sinha et al., 2001). Website content includes information intrinsic quality, contextual quality of information, information representation quality, and quality of information access (Tan and Wei, 2006). Web content is powerful with information and operational capabilities (Agarwal and Venkatesh, 2002) and illustrates the overall structure and organisation of information the user needs (Ganguly et al., 2010). Therefore, it is important to ensure that the information on the website is accurate, in-depth, and up-to-date (Lee and Kozar, 2012) to meet customer needs (Zhang et al., 2009). All of these features are discussed under the title of content quality (Liao et al., 2006). Therefore, up-to-date information encourages customers to compare product features so as to make a purchase decision (Zhang et al., 2009). If a company displays inaccurate information on its website, it damages the image of the company (Lin, 2010). This causes customers to stop searching for

the current website and redirect it to other websites because online users cannot find what they want (Beiard, 2007).

- **Web design:** A well-established, attractive and easy-to-use website enhances users' skills and builds long-term relationships with buyers and sellers (Chen et al., 2007) and predicts business success in online business (Tarafdar and Zhang, 2008). An attractive website encourages online customers to search the web more (Winnie, 2014). Good website design has accessibility (e.g., timing, loading speed and internet line quality) and an excellent quality website support system (Liang and Lai, 2002). Colour is a very powerful tool that grabs the attention of the customer, as it is an atmospheric element that is displayed on the website (Dennis et al., 2009). Colour also affects one's mood (e.g., compatibility or incompatibility) (Lightner and Eastman, 2002). Therefore, online consumers feel good and enjoy great colours on the website and the opportunity to recommend the website to others also increases (Gorn et al., 2004). Speed is also important in successful website design (Osman et al., 2010). easy and simple website design can facilitate access to information (Griffith, 2005), thus, it attracts more online consumers to search the web. A user-friendly website design encourages customers to continue shopping (Cox and Dale, 2001).
- **Customer service:** Customer service includes services before, during, and after-sales. Many organisations have found that their lives to a great extent depend on how they treat their customers. They understand that quality customer service is a key factor in a company's success (Konjkave Monfared and Mirhoseini, 2013). Information technology provides the ability to search, attract and retain customers. Almost all online businesses use information technology to serve their customers (Agourram and Agourram, 2018). Providing superior customer service is a key factor in business success because it plays an important role in the choice of retailers and service providers by consumers (Kriss, 2014). Customer service includes everything that is done directly or indirectly for the benefit of the customer. In other words, customer service is a series of actions designed to ensure that the customer is satisfied with a product or service (Öörmi, 2017).
- **Privacy/security:** Privacy/security means that the website is secure and protects the consumer's personal information (Parasuraman et al., 2005). It is the information confidentiality that ensures the safety of the website for the users (Zhang et al., 2001). In other words, it refers to an individual's ability to control, manage and select personal information (Eastlick et al., 2006). Compared to shopping in actual stores, privacy/security concerns are a serious obstacle to online shopping because online shopping is more uncertain about interacting with websites, retailers, and money transactions (Kwon and Lee, 2003). When consumers are involved in the money transaction, dimensions of privacy/security have a major impact on consumers' perception related to the overall quality of the website (Yoo and Donthu, 2001).
- **Reliability:** When it is said that something is reliable, it highlights many positive aspects related to it. For example, when we say a person is trustworthy, it indicates that the transaction (monetary or social) we want to do with the person is made without any disruption (Barua et al., 2018). Lee et al. (2003) define reliability as the degree to which a consumer believes that new technology does a job consistently and

accurately. Shamdasani et al. (2008) define reliability as the accuracy of the results of a service. The reliability of the website refers to the fulfilment of the promises made to provide the services needed and expected in a reasonable time (Al-Nuaimi et al., 2016).

A review of the literature indicates that website quality, perceived risk, and perceived value are among the factors that can influence website stickiness. Therefore, in this study, a model is designed to investigate the impact of these factors on website stickiness. In fact, the purpose of developing this model is to examine the impact of website quality on website stickiness through perceived risk and perceived value in e-retailers. Therefore, the following research hypotheses are developed.

3 Developing hypotheses

3.1 Impact of perceived risk on web stickiness

Customer perceived risk strongly influences consumer behaviour in decision-making (Eggert, 2006). At its simplest state, the perceived risk is considered as the fraud on the quality of the product (Wu and Wang, 2005). Risk indicates uncertainty in the decision-making process (Mitchell, 1999; Monfared et al., 2017; Konjkav Monfared et al., 2015). Perceived risk in online shopping is considered as a negative outcome that customers perceive when online transactions are conducted (Featherman and Pavlou, 2003). Perceived risk has different dimensions. Convenience risk is defined as the risk associated with difficulty in ordering or delivering the right products without any delay (Pi and Sangruang, 2011). Financial risk is defined as the risk associated with the fear of losing money due to the high product prices, credit card fraud, shipping costs, and other unexpected hidden costs (Dai, 2007). Performance risk is also known as product risk and quality risk. And it is defined as the risk associated with the likelihood of not meeting the expected level of performance or purchasing fake and defective products, because in online shopping the products cannot physically be examined (Dai, 2007). The time risk associated with wasted time is in searching for a reliable online store, searching for products and processing transactions (Pi and Sangruang, 2011). In fact, time risk is predicted to be one of the factors that reduce website stickiness.

When consumers know that online shopping can have negative consequences, they stop these negative messages by stopping shopping (Ma'ruf et al., 2019). In fact, decreasing website stickiness is predicted to be one of the perceived risk consequences because it affects customers' perceptions of the risk of their behavioural intentions. Johnson et al. (2008) examined the impact of risk on customer satisfaction and demonstrated that perceived risk had a negative impact on customer satisfaction. Bélanger and Carter (2008) believe that perceived risk has a negative impact on the goals of using electronic services or electronic transactions. Roy et al. (2017) found that perceived risk had a negative impact on consumers' attitudes to online services. Yu et al. (2017) found that customer satisfaction and their attitude towards online services had a positive impact on the website stickiness. Therefore, it can be said that perceived risk can have a negative impact on website stickiness.

Hypothesis 1 Perceived risk has a significant and negative impact on website stickiness.

3.2 Impact of perceived value on web stickiness

Perceived value is defined as the consumer's overall assessment of product profit based on a comparison between what is received and what is paid (Zeithaml, 1988). Perceived value usually involves the contrast between what the consumer receives and what he or she gives to buy and use a product (Woodruff, 1997). Customer perceived value is also defined as perceived quality (Velimirović et al., 2011). Perceived value is the customer's view of the value of the product and depends on the ability of the product to meet its needs (Ranasinghe and Nawarathna, 2018). Perceived value can be examined from two perspectives: from the perspective of intrinsic value and external value; external value is the benefit of exchange upon completion of a purchase and intrinsic value is the response to the consumer experience which includes: emotion, pleasure, and joy. Actively value reflects the customer's close collaboration with a marketing entity, while reactive value, understanding, understanding and responding to customer experience. Based on these two dimensions, four types of perceived value can be identified: Consumer return on investment, quality of service, aesthetics, pleasure, and vitality (Tsai and Wang, 2017). Regarding the dimensions of value, Petrick (2002) concluded that value includes five dimensions of quality, emotional response, monetary price, behavioural price, and reputation. Sheth et al. (1991) propose different dimensions of perceived value, such as performance, social, emotional, epistemic, and conditional characteristics. Sweeney and Soutar (2001) also divided perceived value into four dimensions of quality, price, social value, and emotional value.

The value of e-shopping refers to the perceived benefits of online trading (Wu et al., 2014). Gaining value is a key goal for consumers in online shopping, and the value of e-shopping is crucial to a successful online transaction. Research has shown that e-shopping value determines online shopping intention (To et al., 2007) and e-shopping satisfaction (Szymanski and Hise, 2000). More recently, Chiu et al. (2014) confirm the four advantages of online shopping, namely convenience, product propositions, product information, and monetary savings, that profitable value positively influences repeat online shopping intention. A study by Wu et al. (2014) also shows that when e-shopping value is high, consumers will stick to an e-shop. Also, Chen and Lin (2018) found that the value of online shopping leads to website stickiness.

Hypothesis 2 Perceived value has a positive and significant impact on website stickiness.

3.3 Impact of website quality on web stickiness

The better the customer's assessment of the quality of the website and the performance of the different dimensions of the website quality, the more customer satisfaction will be in responding to the needs and expectations of the site visitor, and retail websites can have a higher quality of customer relationship and experience on the site (Srinivasan et al., 2002). Electronic customer satisfaction has both cognitive and emotional impacts on website users (Kim et al., 2007). Ellis and Kurniawan (2000) demonstrated a positive relationship between customer satisfaction and customer preference for a website. In summary, the literature indicates that the more satisfied a customer is with the website, the more positive his or her attitude will be (Li et al., 2014). Yu et al. (2017) believe that website quality enhances website satisfaction and attitude to the website and website

satisfaction and attitude to website have a positive impact on website stickiness. Chen and Lin (2018) found that information quality, security, and quality of e-shopping systems increase website stickiness. So:

- Hypothesis 3 Website quality has a positive and significant impact on website stickiness.
- Hypothesis 3a Content quality has a positive and significant impact on website stickiness.
- Hypothesis 3b Website design has a positive and significant impact on website stickiness.
- Hypothesis 3c Customer service has a positive and significant impact on website stickiness.
- Hypothesis 3d Privacy/Security has a positive and significant impact on website stickiness.
- Hypothesis 3e Reliability has a positive and significant impact on website stickiness.

3.4 Impact of website quality on perceived risk

Since website quality is an important factor in evaluating online retailers, optimal website quality assessment not only leads to positive emotions but also reduces perceived risk (Kim and Lennon, 2013). Grewal et al. (2007) stated that the perceived quality of service providers affects risk perception. They also stated that information on service providers' performance can be obtained by measuring consumers' perceptions of service quality. In addition, research indicates that the risk of loss of privacy and security of consumer information is an important barrier to consumer acceptance and use of the internet (Hui et al., 2007). With the emphasis on the importance of website quality, security and privacy issues for online retailers become crucial since the consumers need to be confident in the ability and willingness of the seller to protect their monetary information during transaction and storage (Pavlou et al., 2007). In addition, Gummerus et al. (2004) found that rapid response to customer requests increased confidence and reduced uncertainty, leading to perceived risk reduction. Also, Kim and Lennon (2013) found that website quality in terms of website design, usefulness, customer service and privacy, and security had a negative impact on perceived risk. Chen and Chen (2019) also found in a study that website quality negatively impacts perceived risk. So:

- Hypothesis 4 Website quality has a negative and significant impact on perceived risk.
- Hypothesis 4a Content quality has a negative and significant impact on perceived risk.
- Hypothesis 4b Website design has a negative and significant impact on perceived risk.
- Hypothesis 4c Customer service has a negative and significant impact on perceived risk.
- Hypothesis 4d Privacy/security has a negative and significant impact on perceived risk.
- Hypothesis 4e Reliability has a negative and significant impact on perceived risk.

3.5 Impact of website quality on perceived value

Parasuraman et al. (2005) believe that consumers evaluate the performance of essential services provided by a website to assess the quality of e-services, for example, whether the website responds appropriately to their questions. Tsao and Tseng (2011) showed that delivering a high level of usefulness is an important aspect of service quality in shopping websites. They claimed that online stores should provide consumers with sufficient information about the products purchased, as well as their return policy and estimated delivery time. Researchers have shown that consumers feel that they can get their shopping done in a timely manner and the website can easily meet them (such as forecasting, enjoying the expectations of orders) and reducing the frustrations that usually occur with shopping (Ha and Stoel, 2009). This shows that shopping websites are capable of delivering high-quality services throughout the shopping experience by attempting to communicate after shopping and taking the necessary steps to decrease the effect of the disaster caused by service failure; they can increase consumer confidence and sense of security on their website, thereby they strengthen the relationship between the two parties (Luo et al., 2012). Researchers have found that perceived value is strongly influenced by the website quality and by improving the website quality, online retailers can increase the perceived value (Bauer et al., 2006). Tandyono (2018) and Pham and Nguyen (2019) find that the quality of service and privacy on a website increases perceived value.

Hypothesis 5 Website quality has a positive and significant impact on perceived value.

Hypothesis 5a Content quality has a positive and significant impact on perceived value.

Hypothesis 5b Website design has a positive and significant impact on perceived value.

Hypothesis 5c Customer service has a positive and significant impact on perceived value.

Hypothesis 5d Privacy/security has a positive and significant impact on perceived value.

Hypothesis 5e Reliability has a positive and significant impact on perceived value.

3.6 Mediating role of perceived risk in the relationship between website quality and stickiness

If customers make sure that a company provides reliable services and fill their demand at once, the probability of running a risk will decrease. The results of a study entitled ‘the effect of quality and reputation of the website on emotion’, which has been conducted on perceived risk and the customers’ plan of purchase, has shown that all dimensions of the website quality except customer service had a negative impact on perceived risk. On the other hand, studies show that the perceived risk is an important factor that influences customers’ choice. (Conchar et al, 2004). In other words, the perceived risk can influence different aspects of customers’ behaviour. At the same time, Sheau-Fa et al. (2012) stated that the perceived risk can affect the intention of purchasing a product. Based on the explanation above, although the perceived risk has an important role on customers’ decisions (Singh and Bhowal, 2008). In this paper it is assumed that perceived risk mediates the effect of website quality on stickiness.

Hypothesis 6 Perceived risk mediates the effect of website quality on stickiness

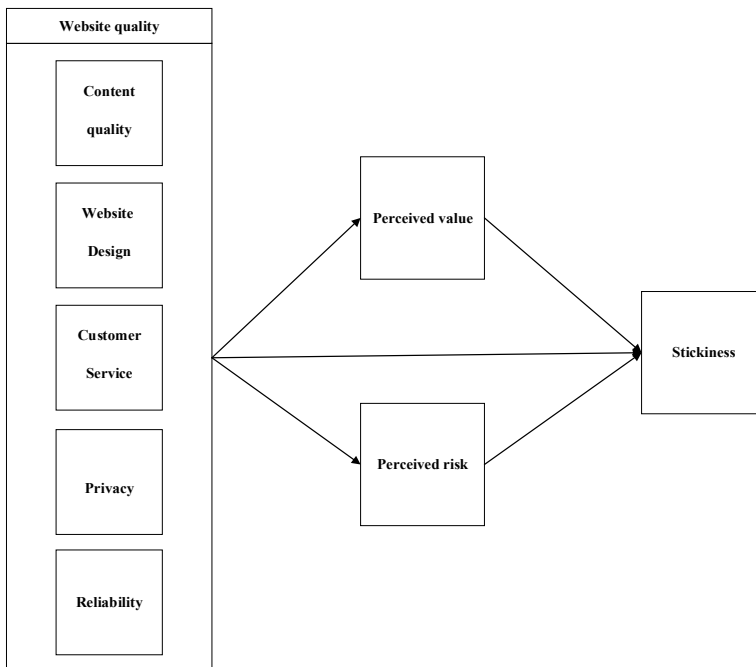
3.7 Mediating role of perceived value in the relationship between website quality and stickiness

Tsao and Tseng (2011) showed that providing a high level of profitability is an important aspect of service quality in shopping websites. They argued that online stores should provide consumers with sufficient information about purchased products, as well as their return policy and estimated delivery time. Researchers have shown that consumers feel that they can receive their purchases on time and that the website easily satisfies them (as it was anticipated above, enjoying the order expectations) and reducing the frustrations that usually happen through online shopping (Ha and Stoel, 2009). Researchers have found that perceived value is strongly influenced by website quality, and by improving website quality, online retailers can increase perceived value. (Bauer et al., 2006). Tandyono (2018) and Pham and Nguyen (2019) found that the quality of service and privacy on the website increases the value of perception. A study by Wu et al. (2014) also shows that when the value of e-shopping is high, consumers will stick to an e-shop. Also, Chen and Lin (2018) found that the value of online shopping leads to website stickiness. In this paper it is assumed that perceived value mediates the effect of website quality on stickiness.

Hypothesis 7 Perceived value mediates the effect of website quality on stickiness

Based on the above theoretical background, the conceptual model of research is presented in Figure 1.

Figure 1 Research conceptual model



4 Methodology

4.1 Measurement scale

After studying the theoretical foundations and background of the research, in this research, a model has been developed to evaluate the impact of website quality on stickiness (considering the role of perceived risk and perceived value) and, then, in order to test the model, a sample survey has been carried out. In this study, a questionnaire has been developed as the main research tool to measure research constructs. The questionnaire was designed after studying the theoretical bases and research background. The questionnaire used 29 items to measure research variables, including three questions for content quality (Xu et al., 2018), two questions for website design (Kim and Lennon, 2013), four questions for customer services (Kim and Lennon, 2013), three questions for security (Kim and Niehm, 2009), three questions for reliability (Kim and Lennon, 2013), four questions for perceived risk (Kim and Lennon, 2013), four questions for perceived value (Sinkovics et al., 2012) and, finally, six questions for measuring website stickiness (Yu et al., 2017; Zhang et al., 2017). It should be noted that in order to answer questions related to all variables (both independent and dependent), a five-point Likert scale was developed from 'strongly disagree' to 'strongly agree'.

4.2 Statistical population and research sample

A questionnaire was used to collect data. Based on the theoretical basis, a questionnaire including 29 items was developed to measure the model variables of this study. The statistical population of this study includes Iranian consumers who use e-retailers for their purchases. In order to distribute the questionnaire, the statistical population was randomly selected and the questionnaire was distributed electronically. Finally, 299 questionnaires were completed and collected. The sample size for the SEM model of this study is 299 people, which meets the minimum sample size for sampling adequacy (Westland, 2010). This survey was conducted in 2019 and lasted for 4 months.

The demographic characteristics of the respondents are shown in Table 1. The sample consisted of 46.15% female and 53.84% male. A large percentage of the sample was between 21 and 30 years old (56.85%) and 16.05% had diplomas, 9.69% postgraduates, 40.80% bachelors, 29.43% postgraduates and 4.01% PhDs.

In this research SEM has been used to test the hypothesis. So, the LISREL 8.80 software has been used to analyse the data. SPSS19 has also been used to evaluate the reliability, validity and other statistical analysis. Confirmatory factor analysis using the maximum likelihood method was used to evaluate the validity of the final model of measurement Table 2. Accordingly, first, the fitness indices of the model were calculated ($\chi^2/df = 2.24$, CFI = 0.94, NFI = 0.95, RMSEA = 0.06). The results of the fitness indices show that all of these indices are consistent with the acceptable value presented by Hair et al. (2010) ($\chi^2/df < 3$, CFI > 0.90, NFI > 0.90, RMSEA < 0.07). Therefore, the fitness of the model is confirmed. The CFA results also show that all items have a significant relationship with their assumed factor. Their factor loadings are also greater than 0.6 (Bagozzi and Yi, 1988). Table 2 shows the Cronbach's alpha coefficient, CR, and AVE. The CR and Cronbach's alpha coefficient values for all variables are greater than the minimum acceptable value of 0.7., which indicates that the variables in this study have

internal consistency (Bagozzi and Yi, 1988). Also, the AVE for each construct was calculated to be greater than 0.5 (Fornell and Larcker, 1981).

Table 1 Demographical characteristics of the Snapp users (N = 299)

<i>Demographical characteristics</i>	<i>Variable</i>	<i>Frequency</i>	<i>Percentage</i>
Sex	Male	161	53.84
	Female	138	46.15
Marital status	Single	212	70.90
	Married	87	29.10
Age	Under 20 years old	63	21.07
	21 to 30 years old	170	56.85
	31 to 40 years old	54	18.06
	41 to 50 years old	12	4.01
	More than 50 years old	0	0
Education	Diploma	48	16.05
	Associate degree	29	9.69
	Bachelor	122	40.80
	Master degree	88	29.43
	Doctorate	12	4.01

4.3 Data analysis

In this paper, SEM is used to analyse the data. In this regard, in order to analyse the factor (to check the construct validity) and to analyse the descriptive and inferential statistics the SPSS 24.0 software was used. To test the research model LISREL 8.80 software was used. SEM is a multivariate analysis technique of a multivariate regression family that allows the researcher to test a set of regression equations simultaneously. This method is a statistical approach to test hypotheses about the relationships among research variables. This method is one of the main tools for analysing the structure of complex data which shows the simultaneous impacts of variables. Table 2 contains the results of the reliability and validity of the research instrument and descriptive statistics (mean and standard deviation). In order to measure the content validity, the questionnaire was presented to the experts along with the objectives and a summary of the research problem and after validation, the questionnaire was finalised. The AVE index was also calculated to check the convergent validity of the research structures (Table 2). Since the values of this index for constructs are higher than the acceptable value of 0.5, the convergent validity of the questionnaire is confirmed (Fornell and Larcker 1981).

In order to check the construct validity of the questionnaire, factor loadings related to the questions were calculated Table 2. Since the factor loadings of all questions of this questionnaire were higher than 0.5, the validity of the research instrument was confirmed. Also, Cronbach's alpha coefficient and CR were calculated for each of the research constructs Table 2. As the results show, the reliability of the questionnaire is confirmed (Bagozzi and Yi, 1988).

Table 2 Descriptive statistics, reliability and validity

<i>Constructs</i>	<i>Items</i>	<i>Factor loading</i>	<i>AVE</i>	<i>CA</i>	<i>CR</i>	<i>SD</i>	<i>Mean</i>
Content quality	CQ1	0.787	0.735	0.712	0.758	0.547	3.699
	CQ2	0.852					
	CQ3	0.855					
Website design	WD1	0.686	0.767	0.818	0.796	0.617	3.668
	WD2	0.755					
	WD3	0.812					
Customer service	CS1	0.829	0.824	0.897	0.832	0.611	3.411
	CS2	0.842					
	CS3	0.693					
Privacy	S/P1	0.774	0.718	0.803	0.884	0.627	3.527
	S/P2	0.896					
	S/P3	0.869					
Reliability	R1	0.743	0.764	0.809	0.894	0.649	3.692
	R2	0.666					
	R3	0.836					
Perceived risk	PR1	0.691	0.765	0.753	0.836	0.712	2.764
	PR2	0.608					
	PR3	0.845					
	PR4	0.837					
Perceived value	PV1	0.827	0.704	0.860	0.905	0.599	3.753
	PV2	0.852					
	PV3	0.840					
	PV4	0.839					
Stickiness	S1	0.749	0.772	0.847	0.888	0.801	3.115
	S2	0.833					
	S3	0.825					
	S4	0.721					
	S5	0.785					
	S6	0.603					

Notes: CA: Cronbach's alpha; CR: composite reliability; AVE: average variance extracted; SD: standard deviation.

5 Findings

In this study, as mentioned earlier, the SEM method was used to test the model. Accordingly, it is necessary to check the fitness of the model first. Therefore, in order to evaluate the fitness of the research model, the fitness indices of NFI, NNFI, PNFI, CFI, IFI, RFI, RMSEA were calculated. The results are presented in Table 3. According to the calculated fit indices, the fit of the research model is confirmed.

Table 3 fitting variables of research model

<i>Fitness indices</i>	<i>Value in our study</i>	<i>Acceptable values</i>	<i>Source</i>
NFI	0.95	≥ 0.90	Hair et al. (2010)
NNFI	0.91	≥ 0.90	Hair et al. (2010)
PNFI	0.92	≥ 0.90	Hair et al. (2010)
CFI	0.96	≥ 0.90	Hair et al. (2010)
IFI	0.96	≥ 0.90	Hair et al. (2010)
RFI	0.92	≥ 0.90	Hair et al. (2010)
RMSEA	0.06	≤ 0.08	Hair et al. (2010)
χ^2/df	2.24	≤ 5	Hair et al. (2010)

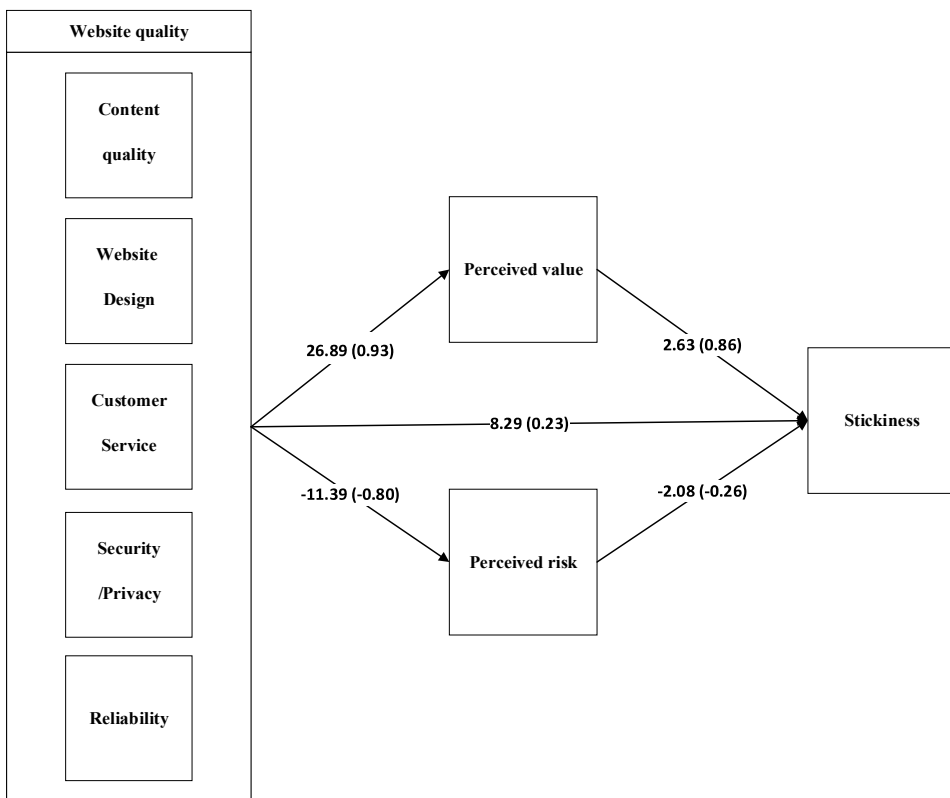
Figure 2 The final model of the research

Table 4 provides a summary of the data analysis results. According to the results, it can be said that perceived risk has a significant and negative impact on Web stickiness ($\beta = -0.26$, $t = -2.08$). In fact, the increased perceived risk of shoppers can reduce the stickiness to online retailing. The results also showed a positive and significant impact of perceived value on stickiness ($\beta = 0.86$, $t = 2.63$). The results of Table 4 show that the website quality has a significant and positive impact on stickiness ($\beta = 0.23$, $t = 8.29$). In this article, the impact of each dimension of website quality on stickiness was also

investigated. The results show that dimensions of content quality, website design, customer service, security, and reliability have a positive and significant impact on stickiness. In addition, the results of Table 4 show that the quality of the website and its four dimensions (website design, customer service, security and reliability) have a significant and negative impact on the perceived risk. But the content quality does not affect perceived risk because its t-statistic is less than 1.96. Based on the findings presented in Table 4, website quality and its four dimensions (content quality, website design, security and reliability) have a positive and significant impact on perceived value. But customer service has no significant impact on perceived value. Furthermore, the empirical results revealed that perceived value and perceived risk mediate the effect of website quality on stickiness.

Table 4 The results of the hypothetical paths

<i>Hypothesis no.</i>	<i>Paths</i>		<i>t-values</i>	<i>Path coefficient</i>	<i>Result</i>	
	<i>independent</i>	<i>dependent</i>				
H1	Perceived risk	Stickiness	-2.08	-0.26	Supported	
H2	Perceived value	Stickiness	2.63	0.86	Supported	
H3	Website quality	Stickiness	8.29	0.23	Supported	
H3a	Content quality	Stickiness	7.51	0.53	Supported	
H3b	Website design	Stickiness	3.37	0.28	Supported	
H3c	Customer service	Stickiness	4.20	0.30	Supported	
H3d	Privacy	Stickiness	5.92	0.36	Supported	
H3e	Reliability	Stickiness	2.07	0.15	Supported	
H4	Website quality	Perceived risk	-11.39	-0.80	Supported	
H4a	Content quality	Perceived risk	-1.31	-0.09	Not supported	
H4b	Website design	Perceived risk	-7.59	-0.63	Supported	
H4c	Customer service	Perceived risk	-2.37	-0.19	Supported	
H4d	Privacy	Perceived risk	-2.15	-0.28	Supported	
H4e	Reliability	Perceived risk	-2.16	-0.16	Supported	
H5	Website quality	Perceived value	26.89	0.93	Supported	
H5a	Content quality	Perceived value	8.19	0.33	Supported	
H5b	Website design	Perceived value	5.55	0.25	Supported	
H5c	Customer service	Perceived value	1.22	0.06	Not supported	
H5d	Privacy	Perceived value	2.08	-0.08	Supported	
H5e	Reliability	Perceived value	8.23	0.33	Supported	
<i>Indirect effects</i>						
<i>Hypothesis no.</i>	<i>Independent</i>	<i>Mediator</i>	<i>Dependent</i>	<i>t-values</i>	<i>Path coefficient</i>	<i>Result</i>
H6	Website quality	Perceived risk	Stickiness	5.73	0.43	Supported
H7	Website quality	Perceived value	Stickiness	8.76	0.79	Supported

The final model of the research is presented in Figure 2.

6 Discussion and conclusions

The purpose of this study was to investigate the factors affecting the stickiness of users in online retailing. The results showed that the website quality design had a positive impact on the stickiness of users. Factors such as content quality, type of formatting, colour scheme, security and privacy, reliability and type of service are all factors that directly affect users' stickiness. The findings also showed that perceived risk had a negative and significant impact on stickiness. Most e-retailers in Iran have been able to significantly reduce the perceived risk of their users, thus, they attract users to the website and users will visit these sites to review their required goods. For example, delivering the right products and timely delivery that reduces the time risk increases the website stickiness. Reducing operational and financial risk also increases website stickiness. These results are in line with the research of Yu et al. (2017). Consequently, when a website builds trust for its users and reduces their perceived risk, it will lead to users' stickiness to that website. In this regard, it is suggested that online retailers first identify the types of perceived risks their customers have and then employ strategies to reduce any perceived risk.

Similarly, the findings showed that perceived value had a significant and positive impact on stickiness. In fact, online retailers can increase their customers by adding value to their website. These results are also in line with research by Wu et al. (2014). In fact, when a website creates value for its users, it will lead to users' stickiness to that website. Hence, it is recommended that marketers first identify the value-creating factors for their customers and then provide these customers with an opportunity to increase their stickiness to the company website.

Research findings show that website quality has a positive and significant impact on stickiness. Furthermore, the results revealed that perceived value and perceived risk play mediating role in the relationship between website quality and stickiness. In other words, the website quality has a direct and indirect effect on stickiness. The results are in accordance with a research by Yu et al. (2017) who believe that website quality enhances electronic satisfaction and electronic satisfaction has a positive impact on website stickiness. When a retail website is of high quality, it leads to the stickiness of users to that website. Websites must be attractive to consumer services; therefore, website quality is an important factor in increasing website stickiness; website quality, design, features and content are an important part of creating a website to enhance online shopping. Research findings show that content quality has a positive and significant impact on stickiness. The results are in line with Chen and Lin (2018) research, which states that the quality of content and information is an important factor in website success. When a website has authentic content, the stickiness of that website will be high. So, it can be said that content marketing plays an important role in the success of online retailing. Accordingly, generating the appropriate and credible content can increase users' stickiness to the website. E-businesses can attract users in many ways, so businesses with well-designed design, colour selection, and up-to-date content can have a significant impact on attracting users. This article suggests that individuals entering e-marketplaces must scrutinise the target market as well as community interests in order to create appropriate content and websites to attract and use users.

Research findings show that website design has a positive and significant impact on stickiness, which is in line with Chen and Lin (2018) research results, which point to successful website design, perceived ease of use, ease of navigation and The navigation features will affect the perceived quality of the website as well as the stickiness. As a result, proper website design does not waste the customers' time, and it provides them with accurate information, and makes it easy and fast to complete transactions and it increases stickiness.

The findings showed that customer service had a positive and significant impact on stickiness. Providing appropriate customer service is a key factor in business success because it plays an important role in selecting the retailers and service providers by consumers (Kriss, 2014). When a website provides unique services to its users and responds quickly to their queries and requests, it can increase the users and their satisfaction. Research findings showed that security has a positive and significant impact on stickiness. The results are compatible with Chen and Lin (2018) research is showing that website security refers to data protection, and storage occurs when customers purchase/book online, which is another key factor for being successful and attracting users to the website. Research findings show that reliability has a positive and significant impact on stickiness. Once users have access to a website and are confident in the purchases, transactions, and quality of its products and services, they will be more likely to stick to it.

The findings of this study show that the quality of the website has a significant and negative impact on perceived risk, which is in line with the results of previous research (Chen and Chen, 2019; Kim and Lennon, 2013). Increasing the quality of website content, improving website design, maintaining customer privacy and security, providing good customer service and, reliability of a website can reduce the risk perceived by e-retail customers. The impact of website design on perceived risk is more than other factors. The findings showed that content quality did not have a significant impact on perceived risk. This means that consumers pay less attention to the content of the website when considering the risk of purchasing e-retail in Iran.

The findings of this study show that website design has a meaning and a negative impact on perceived risk. Being in accordance with Kim and Lennon (2013) research, the results show that a proper's and easy website design has a positive impact on experiencing pleasurable online purchases and reduces perceived risk. The findings of the current study show that customer service has a negative impact on perceived risk. These findings show that quick response and helpful service from the website reduces perceived risk, which is in accordance with the results of Kim and Lennon (2013) research. They believe that consumers usually look for customer service when they find information on the website, if the purchase process fails or the product is not delivered in the expected time, the customer will not have a good customer service experience. Conversely, after experiencing useful service and responsiveness, consumers can significantly underestimate the risk of buying a website, so more and better customer service leads to reduce perceived risk. The findings of this study show that privacy/trust has a negative impact on perceived risk. This is in line with the findings of Kim and Lennon (2013). They believe that when a customer is confident in the security of their e-commerce as well as the privacy of their website, they realise the less perceived risk. The findings of this study show that reliability has a negative impact on perceived risk. The results show that accurate and fast delivery of online services reduces the risk of website shopping.

This is in line with the findings of Kim and Lennon (2013). This indicates that users feel low risk if they perceive the high reliability of the website (Barua et al., 2018).

Research findings show that website quality has a significant and positive impact on perceived value, which is consistent with the results of previous research (Chang et al., 2014; Kim and Niehm, 2009). When consumers evaluate the quality of e-services positively, it results in a positive attitude toward that site (Parasuraman et al., 2005). This, in turn, increases the perceived value. According to the findings, the quality of content has a positive and significant impact on the perceived value. The results are consistent with the research (Daliri et al., 2014). The content quality of the site has a positive impact on users' attitude and when the content quality of the website is considered positive by the users, it will have a positive attitude towards it. It will generate value in the mind of the user. Online retailers can create value through the quality of content presented to their users. Researchers have found that online retailer users who have good information and content quality will have a more positive attitude towards the website that leads to value creation (Tsao and Tseng, 2011). According to the findings of the current study, website designing has a significant and positive impact on the perceived value. There some factors which should be taken into account in designing d a website as follows: ease of use, product information, entertainment, trust, etc. that influence users' attitude towards a retail website that leads to value creation (Elliott and Speck, 2005). Based on research findings, privacy has a positive and significant impact on perceived value. Selling websites can provide value in the minds of users if they provide a secure portal for users and their information. In one study, Jahangir and Begum (2008) show that the higher the website security, the more trust and attitude of users have and it leads to value. Research findings show that reliability has a positive and significant impact on perceived value. In online retailing, if the ordered product and delivered one matched with each other, it would give users confidence in the website and, ultimately, create value for them. According to Kim et al. (2012), if users trust a website, they make less effort to search for information about that website because that site has been able to generate value for its users.

6.1 Limitations and suggestions for further research

Like other studies, this research suffered from some limitations. First, this study was conducted in the Iranian electronic retail market and its findings cannot be generalised to other markets in other countries. In addition, the impact of perceived risk structures and perceived value as a variable on stickiness has been investigated, whereas these two variables have been considered in the literature as multidimensional constructs. Investigating the impact of each of the perceived risk dimensions and perceived value on stickiness could, therefore, provide useful information for researchers and marketers. Thus, considering that different aspects of perceived risk have been identified in the research literature, it is suggested to examine the impact of each of these dimensions on stickiness. It is also recommended that different types of the perceived value of retailers be identified and the impact of each on stickiness be separately investigated. In this study, the occurrence of online stickiness in electronic markets was examined according to one model. In this regard, it is suggested that this model be explored in social networks as well. There are also other factors as the occurrence that can be developed and examined in one specific model.

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Appendix

Scale items

Construct		Items	Citation
Content quality	CQ1	The title of the Digikala website catches my attention	Xu et al. (2018)
	CQ2	The content presented on Digikala website is attractive to me	
	CQ3	The content presented on Digikala website is interesting for me	
Website design	WD1	The Digikala website prevents wasting my time by having proper design	Kim and Lennon (2013)
	WD2	The Digikala website provides me information about products and services in detail	
Customer services	CS1	The process of performing and completing the transactions on the Digikala website is easy and fast	Kim and Lennon (2013)
	CS2	The Digikala website is consistently updating while it fills customers' demand	
	CS3	The Digikala website reviews and responds to users' questions at once	
	CS4	There are appropriate services such as 'taking an opinion poll' on Digikala website	
Security/privacy	SP1	The Digikala website is necessarily provided with special security features called 'anti-theft'	Kim and Niehm (2009)
	SP2	I feel safe while performing transactions on Digikala website	
	SP3	My privacy in Digikala website is protected and controlled	
Reliability	R1	The products offered on the Digikala website are carefully displayed	Kim and Lennon (2013)
	R2	The product which I purchased from Digikala was exactly what I expected when I received it	
	R3	The product will be delivered at the promised time	
Perceived risk	PR1	It is difficult to judge the quality of the products and the services on the Digikala website	Kim and Lennon (2013)
	PR2	I am not sure whether my personal information on the Digikala website is secure	
	PR3	I am not confident with the quality of the products offered on this website	
	PR4	I think purchasing from this website is wasting money	

Scale items (continued)

<i>Construct</i>		<i>Items</i>	<i>Citation</i>
Perceived value	PV1	In my opinion the Digikala website is valuable in terms of the quality of the products and services that is presented	Sinkovics et al. (2012)
	PV2	I believe that purchasing goods from Digikala website is an adequate one to me	
	PV3	I can save my time by purchasing goods from the Digikala website	
	PV4	It is easy for me to buy goods on Digikala website	
Stickiness	S1	I plan to spend more time on this website reviewing the products and services	Yu et al. (2017), Zhang et al. (2017)
	S2	I often use the Digikala website	
	S3	I spend time on Digikala website more than other websites	
	S4	I visit the Digikala website every time I am online	
	S5	I am willing to be a customer of Digikala website rather than other websites	
	S6	I am interested in visiting the Digikala website	