The relationship between recommender factor, with customer satisfaction and loyalty due to the moderating role of product-related knowledge and experience of online shopping

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Abstract

Recommender factors have been used widely as an instrument of support in making decisions by many e-commerce sites and online applications. This study examines the moderating role of knowledge about products, and online shopping experience, As well as mediating role quality suggests and customer satisfaction in the relationship between recommender agents and customer loyalty. The method used in this research is a descriptive survey. The statistical population in this study is all online shoppers of digikala online store in Golestan province that their number is unlimited and due to the infinity of the statistical population, minimum sample size of (384) was considered. A standard questionnaire was used to collect data that its validity and reliability were approved. Structural Equation Modeling and Smart PLS software have been used to analyze the data. The results indicate that the recommender factors have a significant relationship with satisfaction and customer loyalty, and knowledge associated to the product, amends the relationship between quality and customer satisfaction.

Keywords: recommender factors, customer satisfaction, product knowledge, experience of online shopping and customer loyalty.
Introduction
In the past few years, information created by users like ratings, tagging and social networking support systems, development and improvement of systems based on preference and personal operating system, has developed the recommender agents. Recommender agents widely used as a tool to support the decision taken by many e-commerce sites and online applications. Sites like Amazon and Netflix have used these recommender factors in wide level in order to support their online consumers. These systems by assessing the increase in sales and customer satisfaction have achieved remarkable success. Similarly, social news site using the words like and dislike provides these personalized suggestions to users. Generally, it is assumed that relatively high quality and relevant content provided by the system recommender agents significantly enhance online User's experiences, which ultimately are expected to have a positive impact on customer satisfaction and resulting customer loyalty to sites (Yoon et al, 2013). Satisfaction is an important factor in success of electronic commerce. Thus, customer satisfaction can be defined as customer evaluation of a product or service according to their expectations and needs (Anderson & Srinivasan, 2003). Online satisfaction is defined as customer satisfaction on previous experience buying from an e-commerce company (Hadadian and Bagherieh Mashhadi, 2014). Therefore, customer satisfaction is not determined only by the characteristics in the product or service. Customer interaction system also plays a role in the formation of consent, and satisfaction makes customer loyalty. Oliver (1999) defines loyalty as follows: "loyalty refers to a strong commitment to repurchase a superior product or service in the future, just the same brand or product spite of the influence and potential competitor's marketing efforts be purchased (Moosakhani, et al., 2012). Of course, creating loyalty in e-commerce customers is very difficult. Because in the Internet, customers at no cost and easily with just one click can get out from a website and visit another website. Thus, online companies are more enthusiastic about implement loyalty programs. Provide incentives and bring more benefits to their customers, at the end their purchasing, create positive feelings for their future visits (Hamid-Zadeh et al., 2011).

In the knowledge-based economy, the main source of sustainable competitive advantage depends on how to create, share and use knowledge. Therefore, knowledge is considered an important factor in the processing of information related to product and consumer decisions and can have a significant effect on the acceptance development of an identifier. Knowledge associated to complex and multidimensional concepts describes the product with information about structure and content of a product which stays in memory (Orion et al., 2009). Furthermore, when customers repeat buying behavior several times, feels mastery over the buying process. As a result, online shopping experience, reduce time of familiarity and complexity; In this way, the result will be a better understanding of how customers search for products and services on the website of the seller and also provide detailed procedures to carry out such searches and thus reduced complexity. Rising Familiarity, Refers to knowledge that is obtained through previous experience on the website of a seller or similar websites, (fair and Moemen Kashani, 2010). Nowadays, the industry of most advanced countries is in the glow of enhance customer loyalty. This is slightly due to the rise of emerging markets such as China, India, Mexico, Brazil, etc. as an economic force on the world somewhat due to the economic decline of America as the leader.
of the free economy. In International trade retaining customers and gains their loyalty is very important. Because the emerging powers, snatched old rival's market share and have emerged as a strong competitor in the competitive field. This study examines the moderating role of related knowledge products and online shopping experience. Also the mediator's role of suggest quality and customer satisfaction between recommender agents with customer loyalty. So the main subject of this article is:

Is there a significant relationship between recommender agent and customer satisfaction and loyalty due to the moderating role of product-related knowledge and experience online shopping in Digikala online store?

Model and research hypotheses
The research model is presented in the following figure. In this model recommender agent, independent variable is suggesting quality, and customer satisfaction is mediator variable, product-related knowledge and experience of online shopping are interventionist variable and customer loyalty is the dependent variable.

![Figure 1: conceptual model](image)

Relationships between variables in the conceptual model and research hypotheses were introduced as follows:

1. Recommender agent has a significant relationship with quality of suggestion.
2. The quality of Suggestion has a significant relationship with customer satisfaction due to the moderating role of product knowledge.
3. The quality of suggestion has a significant relationship with customer loyalty.
4. Customer satisfaction has a significant relationship with customer loyalty, according to the moderator role of online shopping experience.
6. Online shopping experience, amend, the relationship between customer satisfaction and customer loyalty.
7. Recommender agents has significant with customer loyalty According to mediating role of quality Suggestion and customer satisfaction.
Materials and Methods
This study, in terms of goal is applied and the method is descriptive-survey. Also terms of issue and purpose of the research is applied. The statistical population included all customers of Digikala online store in Golestan province which its size is unlimited. Morgan table was used to determine the sample size. According to the infinity of the population, the sample size is 384. Simple random sampling method was used in this study. The data collection tool is questionnaire. Cronbach's alpha was used to assess reliability; its value was obtained in this study 0.81 which shows the reliability of the questionnaire.

Hypothesis testing
In order to test the hypothesis and (conceptual model) were used partial least squares method of structural equation modeling. Smart PLS software was used for this purpose. To examine the hypothesis significance testing, path coefficients between variables, software output have been used; Path and results related to significant test have been given in Table 1.

Figure 2: SEM at standardized coefficients
According to the conceptual model output we examine the research hypothesis. 

**The first hypothesis:** there is a significant relationship between the agents recommender with quality of Suggest. According to Table 1, the level of significance between variable type and Suggest of recommender is equal to 7/360 that is greater than (1/96) and indicates that the
relationship between the type and Suggest of recommender at level of confidence (95%) is statistically significant. The path coefficient between these two variables (0.0/68) and shows the effect of variable recommender agents, on the quality of suggestion. Thus the first hypothesis is confirmed.

**The second hypothesis:** there is a significant relationship between the Suggest with customer satisfaction due to the moderating role of product knowledge.

According to Table 1, there is a significant level (5.825) between variable qualities of Suggest with customer satisfaction due to the mediating role of product knowledge. Which is larger than (1/96) and indicates that the relationship between Suggest and customer satisfaction at the confidence level (95%) is significant. The path coefficient between these two variables is (0.546) which it shows the effect of varying quality Suggest on customer satisfaction so second hypothesis is confirmed.

**The third hypothesis:** Suggest has a significant relationship with customer loyalty. According to Table 1, significant level of Suggest and customer loyalty is equal to (4.053) which is larger than (1.96) and indicates that the relationship between Suggest and customer loyalty in the confidence level (95%) is significant.

The path coefficient between these two variables is (0.247) and it shows the effect of Suggest on customer loyalty. So the third hypothesis is confirmed.

**The fourth hypothesis:** there is a significant relationship between customer satisfactions with customer loyalty, with regard to the moderator role of the online shopping experience.

According to Table 1, significant levels of customer satisfaction and customer loyalty is with regard to the role of the moderator of the online shopping experience (5.583) larger than the amount (1.96) and indicates that the relationship between customer satisfaction and customer loyalty At level of confidence 95% is significant. Also path coefficient between these two variables (0.315) and shows the impact on customer loyalty and customer satisfaction. So the fourth research hypothesis is confirmed.

**The Fifth hypothesis:** product-related knowledge amends the relationship between customer satisfaction and Suggest.

According to Table 1, the level of significance between the variables of Suggest, product knowledge and customer satisfaction is related to (2.96). Which is larger than (1.96), and indicates that the relationship between Suggest, relevant knowledge of product and customer satisfaction is significant at 95%; also path coefficient between the two varies to 0.210. Due to the positive path coefficient of product-related it follows that have a positive impact on the relationship between Suggest with customer satisfaction and this means that, knowledge is associated with product increases positive relationship between Suggest with customer satisfaction and vice versa. So the fifth research hypothesis is accepted.

**The Sixth hypothesis:** online shopping experience not moderating the relationship between customer satisfactions with customer loyalty.

According to Table 1, significant level of customer satisfaction, online shopping experience and customer loyalty equal to (1.775), which is smaller than (1.96), and indicates that the relationship between customer satisfaction, online shopping experience and customer loyalty at a confidence level 95% is not significant.
Thus the role of the moderator of the relationship between customer satisfactions with customer loyalty online shopping experience at 95% will not be accepted. As a result, the research sixth hypothesis is not confirmed.

**The seventh hypothesis:** Recommender agents have a significant relationship with customer loyalty with the role Suggest and customer satisfaction. To investigate the role of mediating variables in Suggest and customer satisfaction, we used structural equation outputs. In examining relationships between variables, despite the mediator, direct effects, indirect and total effect should be considered (Ramin Mehr, 2013).

The total effect is obtained from the sum of the direct and indirect effects. If the indirect effect is greater than the direct effect, the role of mediator interfaces will be accepted (Ramin Mehr, 2013).

The table below calculated the effect of direct, indirect and total effect relationship between recommender agents with customer loyalty.

<table>
<thead>
<tr>
<th>Path</th>
<th>direct effect</th>
<th>Indirect effect</th>
<th>total effect</th>
</tr>
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<tbody>
<tr>
<td>Recommender Agents to Costumer loyalty</td>
<td>0.215</td>
<td>0.239</td>
<td>0.454</td>
</tr>
</tbody>
</table>

As Table 2 and Figure 2 is known, direct effect of Recommender agent, on customer loyalty is (0.215). Recommender agents also have an indirect effect on customer loyalty, also the impact of mediating variables, quality and customer satisfaction is (0.239).

How to calculate indirect effect recommender agents with customer loyalty with the mediating role of quality and customer satisfaction are as follows:

$$ (ORE \xrightarrow{(0.568)} QUA \xrightarrow{(0.247)} L O Y ) + (ORE \xrightarrow{(0.568)} Q U A \xrightarrow{(0.546)} S A T \xrightarrow{(0.315)} L O Y ) $$

$$ = 0.141 + 0.098 = 0.239 $$

Due to the indirect effect of recommender agents, on customer loyalty (0.239) is greater than its direct effect (0.215). As a result of the mediation role of quality and customer satisfaction, at recommender agent effectiveness, on customer loyalty is confirmed, and the seventh research hypothesis is accepted.

**Discussion and conclusion**

Due to advances in technology and communications, the demands and needs of human beings in the same direction is changed. Nowadays individuals are faced with many choices for the purchase of products which intensity of competition among vendors is very high. Hence vendors always using new approaches to making a greater share of the market compared to competitors. One of the most important issues in recent years is to sell products online and the Internet and
remove a maximum of intermediaries which in turn leads to the creation of new mechanisms to provide products.

Web sites selling stores are trying to attract more customers. Promoting technologies related to media, causing great facilities created by the user’s information such as data classification products that can be used to create recommendations based on priorities (Yoon et al., 2013).

Recommender agent has been used widely as a support tool for decision by many e-commerce websites. In this study we investigated to assess the relationship between Recommender agents as a support tool in helping buyers, in order to make a decision with satisfaction and customer loyalty, with measurable the effect of moderating rule of product knowledge and experience of online shopping. The results of this study indicate that there is a significant positive relationship between quality and customer satisfaction due to the moderating role of product knowledge, Accordingly received feedback information from online shoppers; for example, used on pricing or quality of the product will cause their consent and adequate supportive as customers' purchasing decisions. This finding is consistent with results of Hustler and et al in 2011. The results show that quality leads to customer loyalty in Digikala online costumers And observe attractive web design, better sales and better videos of products, can play a giant role in customer loyalty, which these results is aligned with previous results, Zhang et al (2011). The result is more satisfying the feeling of pleasure and satisfaction from goods and services provided by sellers to buyers.

In this study found that exposure to online shoppers with ideal sales website with what their imaginations be the best proposal in terms of their purchasing decisions provides, cause their full satisfaction and loyalty.

These results are consistent with the research of Yoon et al. (2013). According to the fifth hypothesis of this study which about moderating role of product-related knowledge was about Satisfaction and quality. It was observed that whatever conscious buyers of the products is higher Digikala, the intensity of the relationship of quality with satisfaction, has more positive effect.

In this study, we found that the buyers become more aware toward the product Has used this knowledge to compare the website and offer for sale digkala product with a variety of rivals And in fact the idea of selling the company compared with its previous perceptions and experiences according to the ideal level of quality and store, intensity has increased satisfaction. These results are not aligned with the results of research Yoon et al. (2013).

According to the results of the study it was observed that Online shopping experience Digikala online-store products does not modify the relationship between satisfaction and loyalty and this observation to study ion et al (2013) does not match. Table (3) shows the findings of this research alignment about hypotheses first to seventh, with some researchers' findings:

Table 3: Comparison of the first to the seventh hypotheses derived from this research with past research.
Table 3: Comparison of first to seventh research hypotheses results with past research

<table>
<thead>
<tr>
<th>Research Hypothesis</th>
<th>Author</th>
<th>Alignment of research</th>
<th>Non-alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>Yoon and et al (2013)</td>
<td>Aligned with our research</td>
<td></td>
</tr>
<tr>
<td>Second</td>
<td>Hustler and et al (2011)</td>
<td>Aligned with our research</td>
<td></td>
</tr>
<tr>
<td>Third</td>
<td>Zhang and et al (2011)</td>
<td>Aligned with our research</td>
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<tr>
<td>Fourth</td>
<td>Yoon and et al (2013)</td>
<td>Aligned with our research</td>
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<tr>
<td>Fifth</td>
<td>Yoon and et al (2013)</td>
<td>Non-Aligned with our research</td>
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<td>Sixth</td>
<td>Yoon and et al (2013)</td>
<td>Non-Aligned with our research</td>
<td></td>
</tr>
<tr>
<td>Seventh</td>
<td>Yoon and et al (2013)</td>
<td>Non-Aligned with our research</td>
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Suggestions
Perhaps the most important part of any research is Scientific and realistic solutions to resolve problems during the research the researchers tried to discover it. According to the results of research suggestions include:
At the first hypothesis the relationship between the types of agents recommender with quality was approved, therefore it is recommended at Digikala online store offering the perfect package product sales along with the comments buyers and fix flaws try to support and help buyers in making purchasing decisions.
The second hypothesis of this study, the relationship between quality with customer satisfaction was approved due to the moderating role of product knowledge. In an interview with a number of customers of Digikala we found that the commercial films And providing special offers And discounts on certain days Has achieved a lot at customer satisfaction And they show more willing to buy product. A close look at this it can be concluded that Usefulness buyers at choice of store are very effective. It is recommended online stores Taking into account the interests of customers about design of videos, Seeks to provide a useful and effective films In order to generate interest and Also help the customer in choosing to buy product.
In the third hypothesis of this study a significant relationship between the qualities with customer loyalty was approved. About loyal customers many factors must be considered by online stores. Its loyal customers are an advert for the site. Therefore it is recommended that sites online stores consider designing high quality films to advertise their products to generate interest in customers and convince them to continue to use the site and also introduced the site to others.
The fourth hypothesis of this study, the relationship between customer satisfactions with customer loyalty online shopping experience with regard to the role of moderator was approved.
First customer loyalty depends on customer satisfaction. A satisfied customer can become a loyal customer to shop in the future. It is suggested that online shops with attractive design and providing ideal and desirable criteria in choosing products online shoppers met expectations and pay attention to suggestions online customers, because those who have the experience of online shopping Consultants site compare online stores with their favorite sites.

Fifth hypothesis of this study proved that Product-related knowledge amend the relationship between qualities with customer satisfaction. With confirm this hypothesis and taking into account the positive relationship quality with satisfaction it can be concluded that the increase in product-related knowledge Increased positive correlation between satisfactions with the quality. Therefore it is recommended shops by offering films about the details and advantages and disadvantages of products, Extensive encourage customers to watch videos because online shoppers with shopping experience, Have a keen awareness of details in connection with the video.

According to the rejection of sixth hypothesis Based on the lack of The moderator role of the online shopping experience in relationship between customer satisfaction and loyalty Digikala online-store product, Because The emerging of This style shopping Is in Golestan province, it is suggested Digikala store Continued its upward trend in improving website And try to attract more buyers satisfaction and loyalty Because with the passage of time certainly bring more people towards this type of Shopping And with it Competitive intensity will increase.
References


