

The Impact Of Self-Service Technology On Customer Satisfaction Of Online Stores

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Abstract: In today's business environment which unable to meet the needs of the customer without modern technology, providing quality and efficient services plays a critical role in attracting and maintain the customers. One of these attractive technologies is self-service services. Therefore, in this study Expectation-confirmation model in the context of IT has been employed to investigate the effect of self-service technology on customer satisfaction. This model is widely used in the field of online technology. This is a descriptive study and The data gathering tool is two technological questionnaires self-service and customer satisfaction that were distributed among 369 people of available customers of the online store of Tehran which have an electronic symbol, after confirming the validity and reliability. The analysis of research data was performed using spss21 and Amos 21 software and structural equation modeling indicated that all model assumptions have been confirmed, Conceptual model in the considered population is verified and has comprehensiveness.

Keywords: self-service technology, perceived usefulness, perceived control, perceived comfort, perceived enjoyment, customer satisfaction

Introduction

The key to success for any organization and any commercial economic activity is the customer. Believe and practice the principles of customer orientation, customer satisfaction, attract new customers and retain old customers, are the main issues in organizational success and in contrast the neglect of the demands of customers, results in an exit from competing market. The key factor in gaining customer satisfaction and loyalty, is providing appropriate services. In today's business environment that can not meet the needs of the customer without new technologies, providing quality and efficient services plays a vital role in attracting and retaining customers. Self-service is one of the most attractive technologies which in this research the impact of its use on customer satisfaction, especially in online stores was investigated. Because of the complexity of traditional business intelligence tools only professionals are able to use this tool. Thus, operations managers must submit queries to the business intelligence experts, and waiting for a long time to receive submitted reports by IT personnel. Therefore, a large number of organizations still depend on traditional data warehouse systems and slow and rigid business intelligence software development processes and due to this reason their agility level didn't achieve (Arvids et al., 2014).

1- Problem Statement

Customer satisfaction in today's business world is very important, and the secret of survival of a company in competition era is customer satisfaction. Today, buyers are faced with a lot of products and their expectations about the quality of goods and services is very different from the past. Due to these facts, buyers will choose the goods and services that are more consistent with their needs and expectations. Customer satisfaction results in an increase in revenue and profit through repeat purchases, buy new products and buy product by new customers which tend to that product through satisfied customers. On the other hand, change and demands diversity of customers has led to varied customer service tools. Customer service is the set of tasks that aims for customer satisfaction for the company's business growth or ensure that customer expectations of product or service sold to him are met. Self-service technology (SST) has become into a concept that is more prevalent among consumers and allows them to receive services they need, without the help of employees. In other words, self-service network encourages consumers into active service in cooperation with production independent from staff service involvement. As a result, this leads to improve the efficiency and quality of service. Self services include technologies such as automated hotel, restaurant kiosks, telephone banking, online technology, mobile phones and Despite the acceleration in access to retail stores, the use of self-service has been faced with limited success. But the main reason for such disappointing results is the lack of understanding of the factors influencing the relationship between customers by employing self-service. Factors such as customer satisfaction in fact consumer satisfaction is as an accurate measure of the quality of service and also the success of self-service services. Companies can retain customer loyalty through customer satisfaction by providing exceptional service to customers, which in turn, can lead to growth in market share. (Das 2015). Consumer satisfaction from self-service technology, will be the primary motivation for the continuation and again refer to the store. Because the satisfied consumer looking for alternatives to be less and has more effort to develop relationships with current service providers (Wang, 2012). A significant part of the satisfaction of self-service technology has been recognized in the literature, including cognitive variables, such as perception

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of usefulness, optimism, and innovation, but whether the customer can personally select their needed goods and services as autonomous must be investigated from two aspects; The first aspect: Delegation to the customer and release from people who each undertake a process in purchasing that such facts results in increases customer satisfaction from the purchase process. The second aspect: the negative consequences that can lead to self-service purchasing operations that some scholars like Wang, Arun and colleagues and Bonn-itt refer to them. Such issues may be applicable on all purchases that the self service purchasing process generally has what impacts on customer satisfaction. This study attempts to examine this issue in online stores and offer the results in a new research framework. Considering the above, in the present study to investigate the effects of self-service technology on customer satisfaction ECM-IT: Expectation-confirmation model in the context of IT has been used. This model has been widely used in the field of online technology. In general, in the conceptual developed model ECM-IT, consumer satisfaction is measured with the two variables in self-service field to reinforce expectations after the adoption (eg, perceived usefulness and perceived enjoyment) and (control and ease provision). Due to this the aim of this study was investigate the effect of self-service technology on customer satisfaction in online stores and The main question in this way is that what is the effects of the use of self-service technology on customer satisfaction in online shopping?

2-Literature review

2-1 The concept of self-service

Self-service is a type of service that the customer is directly involved in the process. Looking at language self-help books, recipes or minor home repairs we realize that self-service is not a new thing. In fact, by self-service, the consumer must do the part of the process of getting services that otherwise the store employees would have to do this. Such as getting the goods, putting them in bags or even pay the purchase price. It should be noted that the self-service trend is different from automation. While both of these approaches are trying to raise the efficiency of service delivery process, but the automation is trying to replace the activity of employees with equipment; While self-service is trying to replace these activities by customer. Self-service technologies enable customers to develop independent services without the direct participation of employees (Meuter et al, 2000). Withdraw money from an ATM outside the bank, payment for gas at the pump terminals, and checking hotels at a lobby kiosk are the samples of these cases (Gerber and Martin, 2012).

2-2 Self service phenomenon formation

Now we live in a world where to work with applications and tools should not necessarily be an expert. Thus, due to the ease of use any person able to carry out their activities in a short period and this leads to more efficiency. Recently, with the advent of individualism and personalization wave in the world of information technology, management, manipulation and applying data are desired to the personalization. This can be the case in "iPhone" Apple that show the ((me)) and individualism; So that by the "iPhone"

users are able to do most of their analytical procedures individually. This individualism at the level of organizational data has found with the advent of self-service Business Intelligence. Also, the rise of BYOD and BYOBI paradigm leads organizations to the self-service business intelligence (Collier and Barnes, 2015). In BYOBI architecture, end users decide which is the best tool for their application. In this paradigm, for reporting and visualization of data, new data is used instead of the previous data. Simply put, self-service business intelligence is a new approach in Business intelligence which the idea is to empower users, so that users with lower levels by receive the necessary training and create needed reports independently are able to analysis of relevant information at any time, and desired format and (Gartner, 2015). So, with help self-service Business Intelligence Tools Business Intelligence traditional problems largely solved and the possibility of receiving and analyzes operational-level managers is also possible (Logie, 2015). As early as the 1990s, the software companies enable to customize the system pages to customers. After that, many hardware companies have also joined in this trend and offer more options for customization of company products to users (Yang et al., 2015). After the introduction of the Internet, ATM applications (ATM) paved the way for web-based self-service. Today, instead of just product customization or self-service applications for ((final product)) Web-based self-service play an active role in the pre-final development of new products / services (Gerber and Martin, 2012). With increased functionality of data exploration and development of preparation tools and intelligent capabilities, by 2017 most of users and business analysts will have access with self-service tools to prepare data for analysis, (Gartner, 2015) and according to the estimates, the self-service technologies market will reach \$ 31.75 billion by 2020 (Li and Lu, 2016).

2-3 Self service advantages

Self-service tools offer many advantages for users and IT personnel. The reason more customers are turning with these technologies, is the perceived benefits of the transaction independently (Lee and Lu, 2016). One of the most important of these benefits is that customers could achieve to better efficiency in a transaction through self-service technologies. According to recent authoritative reports, these tools can reduce IT-based appeals up to 31% that will have a significant impact on efficiency (Hampryz, 2015). Moreover, the less need for IT personnel intervention in the transaction and technology-based activities is also another reason why customers prefer to use self-service technologies. Additionally, a good network of web-based self-service and offline services can stimulate the creativity of the user in advance of completion of the development, also could accelerate the cooperation and trade, and minimized the innovation costs and risks (Gerber and Martin, 2012).

2-4 Customer satisfaction

Consumer satisfaction by offering services, develop resources that satisfied customers are committed to invest in the transaction (Hsyav et al., 2015). Customer satisfaction can be led to behaviors such as loyalty and positive word of mouth (Abdul-Mahmy, 673: 2002). Therefore, businesses to improve customer satisfaction and

loyalty must be researching about the factors affecting customer satisfaction and revisit him and achieve their loyalty by providing customer satisfaction. In marketing context, customer satisfaction is as a measure that describing how the product or service offered in a range of customer expectations and it is one of the important keys to ensure a successful business because customer satisfaction determining the market growth of the organization in the future. Satisfaction with the level of product quality, quality of services provided, where the product or service purchased, and the price of the product or service is measured in (Abraham et al., 2016). The key to customer loyalty by provide excellent quality services, is the main objective of the business because that is an advantage for customer retention (Ehigie, 2006). Research and studies related to customer satisfaction was conducted over two different categories; Transaction-specific satisfaction (in relation to quality or the role of emotions in assessing of customer satisfaction) Cumulative satisfaction (Economic Psychology approach to customer satisfaction that define the overall experience in the use of a product) .Company can retain customer loyalty through customer satisfaction by providing exceptional service, which in turn, can lead to growth in market share (Das, 2015) and is a prelude to the satisfaction of the customer relationship type. Therefore, the necessity of review customer relationship management (CRM) in this section is clear.

2-5 online shop and customer satisfaction of self-service services

Internet enable buyers to purchase a wide variety of products, without having to appear in retail stores or talk to a service employee (Miter et al., 2000). With the advent of new technology and web applications, web-based self-service now has an important role in the development of products and services. In fact, a web-based innovation platform can overcome the limitations of space and time, while ensuring that provide more independence and options for participants partnership. So, using online stores of self-service technology, if properly designed and implemented, will bring charm and comfort for the user.

2-6 Customer prefers to self-service services

According to TDWI research group reports about the acceptance of self-service Business Intelligence, a third of peoples attempt to implement self-service application, 22% of which are under implementation, 14% in the next six months and 13% at 12 next month will proceed to the implementation of self-service business intelligence. Of those who have implemented this technology, 23% in finance, accounting and human resources sectors, 22% in sales, marketing, service and support units, 34%, in operations, supply chain and inventory and 22% in research and development units was used this system (Aymhaf and White, 2011). So, experience the consumer gains from self-service technology and the development of expectations on these method (eg saving time / speed) is replacing the full service in retail stores (Miter et al., 2000).

2-7 Online self-service

Self-service technology enables customers to independent extension of services without the direct participation of employees (Miter et al., 2000). Self-service technology is

expanding in retail areas . Withdraw money from an ATM outside the bank, paying for gas at the pump terminals, and Checking for hotels in the lobby kiosk is one of them. Today, Internet access is possible everywhere, a new part of self-service technology have emerged in Web sites. This web-based self-service with Internet support enables customers access wherever and whenever without a direct representation (Gerber and Martin, 2012). Custom web-based self-service play an important role in innovation, product / service today. Compared with the traditional common services, useful web-based self-service and Offline Services make the creativity easier, accelerates the collaboration value creation, reduce development costs and risks (Yang et al., 2015). A huge range of goods offered by online stores to consumers quickly(Piazza et al., 2015). However, the breadth of product offerings may lead to additional choices, and thus reduces the satisfaction of goods. To mitigate this situation, mobile consumer technologies (ACT) such as bidder systems were used(Murray et al., 2010).

3- Research conceptual model

The conceptual model of research due to the research records, and related models and self-service dimensions according to Wang model (2012) is given below.

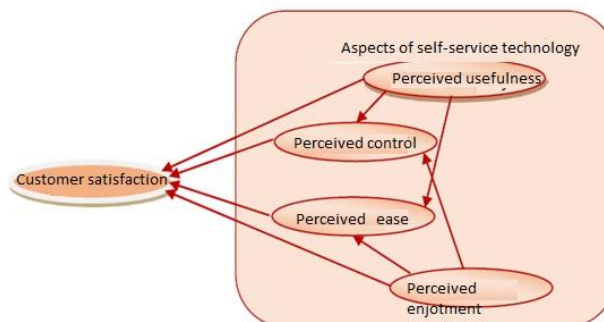


Figure 1-Conceptual model of research

4-Research assumption

Based on the conceptual model, hypotheses can be expressed as follows:

4-1 main hypothesis

Self-service services technology has an impact on customer satisfaction.

4-2 sub-hypotheses

Perceived usefulness has an impact on customer satisfaction in the country online stores.

Perceived usefulness, has an impact on perceived control in the country's online stores.

Perceived usefulness, has an impact on perceived ease of the country's online store.

Perceived pleasure has an impact on customer satisfaction in the country's online store.

Perceived enjoyment has an impact on perceived control in the country's online store.

Perceived enjoy has an impact on perceived ease in the country's online stores.

Perceived control has an impact on customer satisfaction in the country's online stores.
 Perceived ease has an impact on customer satisfaction in the country's online stores.

5-research methodology

The present study is descriptive in terms of information gathering from Library studies and it is a field survey in terms of information gathering questionnaire. Generally this study is functional based on the goal, it is survey descriptive in terms of data gathering and it can be considered as correlation in terms of performance trends.

5-1 Data gathering tool

In assessing self-service technology, the statements of perceived usefulness (4 items), perceived Ease (5 items), perceived enjoyment (2 items) of Ramyhan and Ignatius (2005) and Childers (2001) standard questionnaire and perceived control (5 items) of Davis (2004) standard questionnaire and the statements of customer satisfaction (7 items) of the Moqimi standard questionnaire were extracted. In this questionnaire the closed questions with 5-choice Likert scale from strongly agree (5) to strongly disagree (1) is used.

Table 1-Research questions

Items	Dimension	Variable
11-8	Perceived usefulness	of self-service technology
16-12	Perceived control	
21-22	Perceived ease	
26-22	Perceived enjoyment	
7-1		Customer satisfaction

5-2 The statistical population and sampling method

The population of this research composed of available customers of online stores of Tehran that have electronic symbol. For research sampling according to unlimited statistical population the deaf-blind formula were used. The sample size was 385, of which 369 questionnaire were usable.

5-3 Data analysis method

First, to evaluate the reliability of research tool Cronbach's alpha test was used that indicating the reliability of the questionnaire. In order to check the status of variables normality the Kolmogorov-Smirnov was applied, which indicating the data are normal. Finally, in order to test hypotheses the regression correlation using AMOS- SPSS software was used.

6- The results of the research findings

6-1The results of descriptive statistics

Based on findings from the fourth chapters and charts, people in the study which answered questionnaires have demographic characteristics as follows;

Table 2- Summarized demographic information

description	Demographic variable
(۷۲٪/۴) women ۲۶۷ (۲۷٪/۶) man ۱۰۲	gender
under diploma, ۸۱ diploma, ۵۱ Associate Degree, ۱۱۴ ۱۵ .undergraduate, ۷۵ graduate and ۲۲ Ph.D	Degree of education
۵۰ over (۱۷٪/۹) ۵۰ تا ۴۰ (۵۶٪/۹) ۴۰ تا ۳۰ (۷۱٪/۱) Below ۳۰ (۸٪/۱)	age

2-6 The results of inferential statistics

This section reviews the results of the study, according to an inferential analysis of the data and accordingly summary of these results is presented. Table 2 shows a summary of the research. The indices of the overall fit of structural equation modeling analysis is presented in Table 3.



Figure 2: SEM in the standardized coefficients mode

The following table shows indicators of goodness of fit of structural equation modeling.

Table 3: The Goodness of Fit Index of final research model

conditions	The acceptable value	Obtained value	index
OK	GFI>90%	0.97	GFI
OK	0.90<CFI<1	0.91	CFI
OK	Less than 3 is acceptable	2.35	CMIN/df
OK	RMSEA<0.1	0.07	RMSEA

According to the table above all the indicators to evaluate the fit of the final research model have been accepted. Due to this it can be concluded that the fit of this model has been confirmed. In the second model, structural equation was evaluated in standardized coefficients mode between dimensions of self-service.

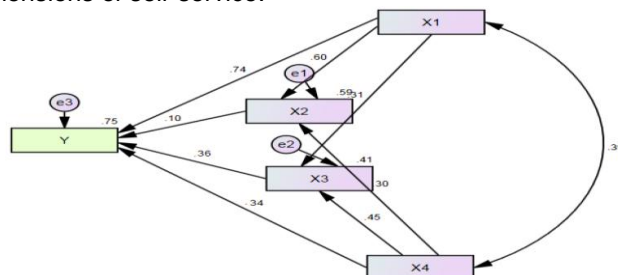


Figure 3: SEM in the standardized coefficients mode

The following table shows the Goodness of Fit of the structural equation model Index of the self-service dimensions. According to the table the goodness of fit index is in acceptable condition.

Table 4: The self-service dimensions goodness of fit of

conditions	The acceptable value	Obtained value	index
OK	GFI>90%	0.95	GFI
OK	0.90<CFI<1	0.96	CFI
OK	Less than 3 is acceptable	2.12	CMIN/df
OK	RMSEA<0.1	0.05	RMSEA

Table 5: summary of the research

Hypothesis result	Route coefficient	hypothesis		
accept	0.97	Customer satisfaction	↔	Self-service technology
accept	0.74	Customer satisfaction	↔	Perceived usefulness
accept	0.60	Perceived control	↔	Perceived usefulness
accept	0.31	Perceived ease	↔	Perceived usefulness
accept	0.34	Customer	↔	Perceived enjoyment

6-3 The results of the research hypothesis tests and their analysis

Results and analysis of the original hypothesis: this hypothesis, focus on the effect of self-service technology on customer satisfaction. The results of data analysis showed that the effect of self-service technology on customer satisfaction has the route coefficient 97/0 Which has a critical value 216/4. The critical value for this parameter (as a five percent error rule in the null hypothesis rejects areas for values outside the range of 96/1 to 96 / 1. Each parameter of the model),is greater than 96/1. Therefore, it can be concluded that the null hypothesis is rejected at the 95% confidence level. In other words, self-service technology has a statistically significant effect on customer satisfaction and the self-service technology is considered more, customer satisfaction is increased in a positive direction. Therefore, this hypothesis is accepted. The result of this hypothesis test of the current study were the same to the results of the hypothesis in Bonnie T research (2015). In this regard, Bonnie T. (2015) shows that technology readiness (TR) has an influence on the quality of self-service technology services, which in turn leads to improved electronic consent. In this regard Abraham et al (2016) shows the relationship 3 which is composed of the four elements of quality of service dimension (stability, reliability and timeliness) is important in maximizing customer satisfaction.

The first sub-hypothesis test result analysis: this hypothesis evaluated the effect of perceived usefulness on customer satisfaction. The results and the analysis of research data shows that the effect of Perceived usefulness on customer satisfaction has the route

coefficient 0.74 Which has a critical value 19.499. The critical value for this parameter (as a five percent error rule in the null hypothesis rejects areas for values outside the range of 96/1 to 96 / 1. Each parameter of the model),is greater than 1.96. Therefore, it can be concluded that the null hypothesis is rejected at the 95% confidence level. In other words, perceived usefulness has a negative statistically significant effect on customer satisfaction and if the perceived usefulness is considered more, customer satisfaction is increased in a positive direction. Therefore, this hypothesis is accepted.

The second sub-hypothesis test result analysis: this hypothesis evaluated the effect of perceived usefulness on perceived control. The results and the analysis of research data shows that the effect of Perceived usefulness on perceived control has the route coefficient 0.60 Which has a critical value 16.570. The critical value for this parameter (as a five percent error rule in the null hypothesis rejects areas for values outside the range of 96/1 to 96 / 1. Each parameter of the model), is greater than 1.96. Therefore, it can be concluded that the null hypothesis is rejected at the 95% confidence level. In other words, perceived usefulness has a negative statistically significant effect on perceived control and if the perceived usefulness is considered more, perceived control is increased in a positive direction. Therefore, this hypothesis is accepted. The result of the hypothesis test of this research is the same to the hypothesis test results in Wang (2012) research, and showed the perceived usefulness, is affected by perceived control.

The third sub-hypothesis test result analysis: this hypothesis evaluated the effect of perceived usefulness on perceived ease. The results and the analysis of research data shows that the effect of Perceived usefulness on the perceived ease has the route coefficient 0.31 Which has a critical value 7.216. The critical value for this parameter (as a five percent error rule in the null hypothesis rejects areas for values outside the range of 96/1 to 96 / 1. Each parameter of the model),is greater than 1.96. Therefore, it can be concluded that the null hypothesis is rejected at the 95% confidence level. In other words, perceived usefulness has a negative statistically significant effect on perceived ease and if the perceived usefulness is considered more, perceived ease is increased in a positive direction. Therefore, this hypothesis is accepted. The result of the hypothesis test of this research is the same to the hypothesis test results in Wang (2012) research, and showed the perceived usefulness, is affected by perceived ease.

The fourth sub-hypothesis test result analysis: this hypothesis evaluated the effect of perceived enjoyment on customer satisfaction. The results and the analysis of research data shows that the effect of perceived enjoyment on customer satisfaction has the route coefficient 0.34 Which has a critical value 4.296. The critical value for this parameter (as a five percent error rule in the null hypothesis rejects areas for values outside the range of 96/1 to 96 / 1. Each parameter of the model), is greater than 1.96. Therefore, it can be concluded that the null hypothesis is rejected at the 95% confidence level. In other

words, perceived enjoyment has a negative statistically significant effect on customer satisfaction and if the perceived usefulness is considered more, perceived ease is increased in a positive direction. Therefore, this hypothesis is accepted.

The fifth sub-hypothesis test result analysis: this hypothesis evaluated the effect of perceived enjoyment on perceived control. The results and the analysis of research data shows that the effect of perceived enjoyment on perceived control has the route coefficient 0.30 which has a critical value 8.332. The critical value for this parameter (as a five percent error rule in the null hypothesis rejects areas for values outside the range of 96/1 to 96 / 1. Each parameter of the model), is greater than 1.96. Therefore, it can be concluded that the null hypothesis is rejected at the 95% confidence level. In other words, perceived enjoyment has a statistically significant effect on perceived control and if the perceived enjoyment is considered more, perceived control is increased in a positive direction. Therefore, this hypothesis is accepted. The result of the hypothesis test of this research is the same to the hypothesis test results in Wang (2012) research, and showed the perceived enjoyment, is affected by perceived control.

The sixth sub-hypothesis test result analysis: this hypothesis evaluated the effect of perceived enjoyment on perceived ease. The results and the analysis of research data shows that the effect of perceived enjoyment on perceived ease has the route coefficient 0.45 which has a critical value 10.371. The critical value for this parameter (as a five percent error rule in the null hypothesis rejects areas for values outside the range of 96/1 to 96 / 1. Each parameter of the model), is greater than 1.96. Therefore, it can be concluded that the null hypothesis is rejected at the 95% confidence level. In other words, perceived enjoyment has a statistically significant effect on perceived ease and if the perceived enjoyment is considered more, perceived ease is increased in a positive direction. Therefore, this hypothesis is accepted. The result of the hypothesis test of this research is the same to the hypothesis test results in Wang (2012) research, and showed the perceived enjoyment, is affected by perceived ease.

The seventh sub-hypothesis test result analysis: this hypothesis evaluated the effect of perceived control on customer satisfaction. The results and the analysis of research data shows that the effect of perceived control on customer satisfaction has the route coefficient 0.10 which has a critical value 0.036. The critical value for this parameter (as a five percent error rule in the null hypothesis rejects areas for values outside the range of 96/1 to 96 / 1. Each parameter of the model), is greater than 1.96. Therefore, it can be concluded that the null hypothesis is not rejected at the 95% confidence level. In other words, perceived control has no statistically significant effect on customer satisfaction. Therefore, this hypothesis aren't accepted.

The eighth sub-hypothesis test result analysis: this hypothesis evaluated the effect of perceived ease on customer satisfaction. The results and the analysis of research data shows that the effect of perceived ease on

customer satisfaction has the route coefficient 0.36 which has a critical value 4.312. The critical value for this parameter (as a five percent error rule in the null hypothesis rejects areas for values outside the range of 96/1 to 96 / 1. Each parameter of the model), is greater than 1.96. Therefore, it can be concluded that the null hypothesis is rejected at the 95% confidence level. In other words, perceived ease has statistically significant effect on customer satisfaction and if the perceived ease is considered more, customer satisfaction is increased in a positive direction. Therefore, this hypothesis is accepted.

6-4 The results of the tests on the model value and the final research model

According to the results of the model showed that all fit indicators show that the model is fitted and also test the model hypothesis except the seventh hypothesis of research all have been confirmed, It can be concluded that the conceptual model is evaluated and confirmed in the community and has required integrity. The final research model was shown in Figure 4.

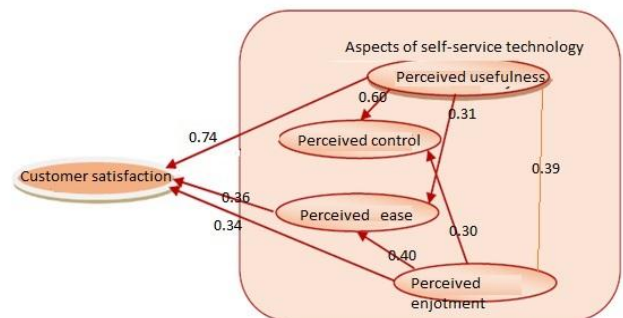


Figure 4: The final research model

7-recommendations on research findings

In line with the findings, the following recommendations provided to improve the level of customer satisfaction in online stores.

- Fast loading web pages of the store, resulting in cost and time savings, thus creating IT infrastructure and its improvement in this area is necessary. Also pay attention to the pace of operations and accelerate transaction processes can be effective. Designing user-friendly and understandable software also can be effective on the perceived usefulness of online stores customers and improve the efficiency and regularity of the web information search leads to an increase in perceived usefulness of customers. Therefore, harmony framework and information order of the website can be effective.
- What customers need on the website must be found so easily so classifying information and the comparison of information must be available on the website. The graphical representation of the Web site must be help customers to use services to easily bought from online stores and customers can easily make a deal through the Web portal and there are a support and accountability at this stage during the day.
- Interaction done through the website easily and purchase and transactions carried out through the website easily and required investment towards innovation and fast accessibility for online stores was

done and user guides available as a guide for using self-service technologies are on the website.

- In creating a variety of online stores services to arouse curiosity in customers some investments must be done and website design attractive and the fun and entertainment systems used for Web customers. It is recommended to use an expert on the psychology of colors because this color harmony had an effect on the attracting customers in addition to creating morale. Also the virtual cartoon characters when previewing the transaction and animated images and the multimedia newsletter should be used.

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