



# Influence of Website Quality, Innovation, and Brand Trust on Customer Satisfaction of Embedded Website in Game Application

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**Abstract.** Website in game application can be used as a medium for marketing as well as a source of income by selling in-game items. A decrease in traffic on the website can cause marketing effectiveness and decreased revenue due to customer dissatisfaction with the website services provided. The purpose of this study was to identify the effect of website quality, innovation, and brand trust on customer satisfaction by using the WebQual 4.0 method as the main reference for making research questionnaires on website quality and other literature studies for innovation and brand trust. The findings of this study are that brand trust is an indicator that greatly influences customer satisfaction with a value of 89.8% and also information quality and service interaction quality have a small effect on customer satisfaction by 13% and 18%.

**Keywords:** customer satisfaction, website quality, innovation, brand trust, WebQual 4.0

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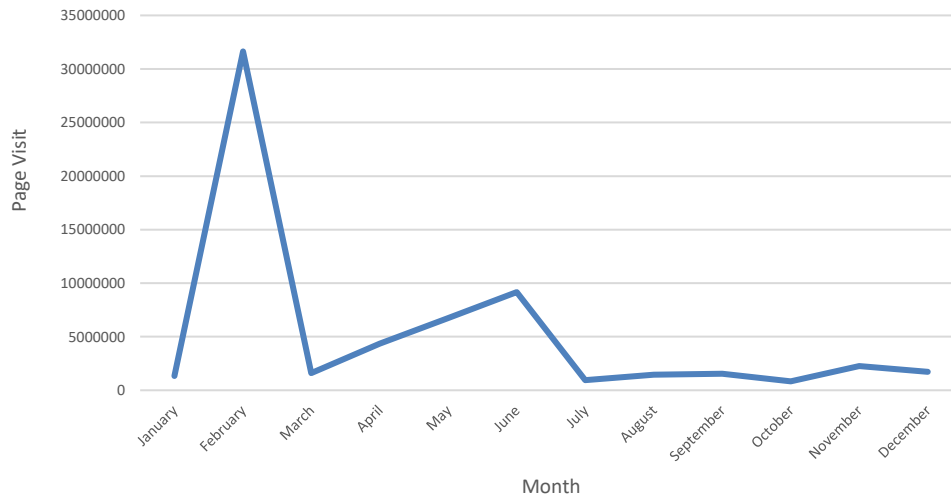
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## INTRODUCTION

The gaming industry is one of the fastest growing industries in Indonesia. In 2018, the growth of the gaming industry in Indonesia increased by 40 percent (Yanuar, 2019). Indonesia itself has been ranked 17th out of 100 countries in the world based on the benefits of the gaming industry (Top 100 Countries by Game Revenues, 2019). This study conducted on one of the companies engaged in the gaming industry, namely Company "A". This company "A" provides digital entertainment platforms and develops and publishes digital content both on mobile and PC in Southeast Asia. The products of this company in Indonesia are mobile games products. This study focused on one of the mobile games products that referred as game X.

This company "A" uses the website as a marketing channel of their products. The website is used for sale of the game items and publish of the game products by organizing a series of campaigns. During the campaign, game team created website for marketing promotion. The marketing promotion both through website and events are expected to enhance the game X quality and increase the company revenue, however so far that the game X team has analysed revenue data only, the effectiveness of the website was excluded of team analysis.

Time constrain and revenue focused target are the main reasons of the game X team did not analyse of the game X performance of the website effectiveness and consumer satisfaction or consumer value. Based on the website monitoring data of game X of the company (see Figure 1) found that the website game visited by costumer decreasing over time. According to Kotler and Keller (2012), described that "If the performance of the product or service doesn't match expectations, the customer is dissatisfied. If the performance is as expected, the customer is satisfied. If performance exceeds expectations, the customer is very satisfied or happy"



**Figure 1.** Website Traffic of Game X

In addition to the quality of the website, the game X team has an assumption that innovation the website such as design, content and brand trust are some the factors that cause a decrease in customer satisfaction. Innovation can be defined as a new concept or product push from new ideas or scientific research, or innovation can be called the commercialization of inventions. Also innovation can be a process where ideas or inventions are converted into products or services that people will pay for. Ideally, it must have quality satisfying each specific need and implementation at an economic cost to become an innovation (Nemati, et al., 2010). Moreover, the study result shown that there is an influence between innovation and customer satisfaction. To satisfy customers, companies must bring changes and new features to attract customers. By doing this practice, every innovation and change that suits customer needs can increase customer satisfaction.

When customers have confidence in a brand, the brand will leave a good impression on the customer's mind and the customer will get better satisfaction. (Doney & Cannon, 1997). According to Morgan & Hunt (1994) brand will also provide more satisfaction to customers when customers like a brand. Lion, et al., (2010) also described that brand trust has a positive influence on customer satisfaction and concludes that building customer trust in the brand is very important. The company can assure customers that trust in the product itself is achievable and adds to the customer's emotional security to the brand.

This research carried out to find influence of website game on customer satisfaction, it included the company "A" website quality, innovation and brand trust. Method of this study is WebQual. WebQual is a method or technique for measuring the quality of a website based on user perception. WebQual has been under development starting in early 1998 and has evolved through a process of repetitive improvements in various e-commerce and e-government domains. This method has changed from a qualitative assessment of customers to quantitative metrics that are useful for management decision making. WebQual 4.0 uses 3 dimensions to represent the quality of the website, namely usability quality, information quality, and service interaction quality (Barnes & Vidgen, 2002). To measure the quality of web sites used WebQual 4.0, which is the latest version of the WebQual.

This study focused on internal factors, namely the quality of the website and innovation as well as external factors, namely brand trust. There have been many studies that discuss the relationship between the quality of the website, innovation and brand trust on customer satisfaction separately. However, there are no studies that combine these three factors together to determine the level of customer satisfaction.

Customer satisfaction is one of the important points for organizations because customer satisfaction is one of the keys to success in website implementation. If the results are not satisfactory for the customer, it will lead to weakness or failure of the website (Tarigan, 2009). Website is one of the information system implementations. The success of the information system is driven by the high usage of the system caused by high customer satisfaction (Yeo, et al., 2002). Measuring the level of customer satisfaction is one of the popular approaches to assessing the success of an information system due to 3 reasons are the use of sensible satisfaction as a measure of success, the availability of reliable tools to measure satisfaction, and other steps are not easy to obtain (Delone & McLean, 1992).

The results of this study provided an insight for company “A”, especially the game X team in managing and improving the quality of the website to increase number the website’s visitor and enhance the customer satisfaction.

## MATERIAL AND METHODS

### Sites and Time of Research

The research conducted at one of the largest digital entertainment company “A” based in Jakarta, especially online game. Object of the research was game X. The game product categorized as Multiplayer Online Battle Arena (MOBA). Sample of the research was 384 gamers of Jakarta city. Data collected through online questionnaire (google form). The research conducted on March 2020 until August 2020.

### Data Collection

The data used in this study is taken from questionnaires distributed to the game X’s customers. The questionnaire was divided into several sessions containing questions related to the research variables obtained from the WebQual method, namely usability, information quality, and service interaction quality adopted from the study (Tarigan, 2009), Innovation adopts the study of (Nemati *et al.*, 2010), as well as the brand trust adopted from Ballester *et al.*, (2003) by using a Likert scale where the scales have the following meanings (1) Strongly disagree; (2) Disagree; (3) Neutral; (4) Agree; (5) Strongly agree.

### Operational Variable

Operational variables are used to determine the types of indicator and individual indicator of variables in the study. In detail the operational variables in this study can be seen Table 1.

**Table 1.** Operational Variables

VARIABLE	DEFINITION	INDICATOR
Usability Quality (Tarigan, 2009)	Usability is an attribute of quality that describes or measures how easy it is to use an interface.	Ease of use
		Ease of navigation
		Ease of operation
		Ease of learning
		Attractive appearance
		Site suitability
		Competence
Information Quality (Tarigan, 2009)	Information Quality depends on three things: information must be accurate, timely and relevant.	Accuracy of information
		Trust information
		Timeliness of information
		Understanding of information
		Relevance of information
		Detailed information precisely
Service Interaction Quality (Tarigan, 2009)	Service Interaction Quality is the extent to which the system can interact with users, organizations or other users, so that the relationship with the system can run continuously.	Right information format
		Good reputation
		Transaction security
		Security of personal information
		Creating a sense of personalization
		Makes it easier to communicate with management or customer service
Innovation (Nemati, et al.,	Innovation can be defined as a new	Keeping promises
		Convey a sense of togetherness
		Uniqueness

2010)	concept or product push from new ideas or scientific research	The novelty element
Brand Trust (Chaudhuri & Holbrook, 2001).	Brand trust can be defined as the willingness of consumers to rely on the brand's ability to perform the functions that it states	Make ends meet
		Reaching expectations
		Give trust
		Not disappointed
		Honesty and sincerity
		Reliability
		Give effort
Customer Satisfaction (Liao, et al., 2010)	Customer satisfaction is the business terminology to evaluate how much the product or service provided by the company can satisfy or please the customer	Make ends meet
		Good experience

For each operational variable, indicator there are statement and code that explaining about the indicator meaning (Table 2).

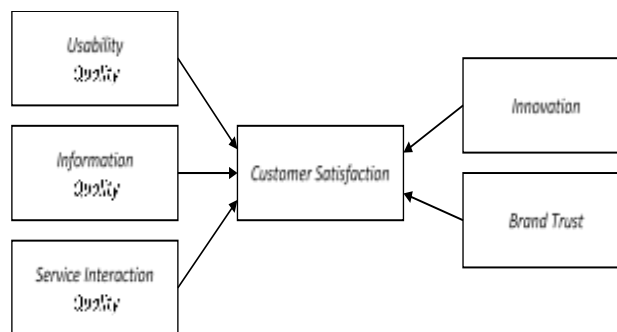
**Table 2. Research Indicator**

INDICATOR	CODE	STATEMENT
<b>Usability Quality</b>		
Ease of use	usa_1	I find this site easy to use
Ease of navigation	usa_2	I find the site easy to navigate
Ease of operation	usa_3	I find this site easy to operate
Ease of learning	usa_4	I found the site clear and easy to understand
Attractive appearance	usa_5	This site has an attractive appearance
Site suitability	usa_6	The design of this site is in accordance with the type and purpose
Competence	usa_7	This site conveys a sense of competence
Positive experience	usa_8	This site provides a positive experience for me
<b>Information Quality</b>		
Accuracy of information	info_1	This site provides accurate information
Trust information	info_2	This site provides reliable information
Timeliness of information	info_3	This site provides timely information
Understanding of information	info_4	This site provides easy-to-understand information
Relevance of information	info_5	This site provides relevant information
Detailed information precisely	info_6	This site provides an appropriate level of detail
Right information format	info_7	This site provides information in an appropriate format
<b>Service Interaction Quality</b>		
Good reputation	serv_1	This site has a good reputation
Transaction security	serv_2	I feel safe to make transactions
Security of personal information	serv_3	I feel my personal information is protected
Create a sense of personalization	serv_4	This site gives a sense of personalization
Makes it easier to communicate with management or customer service	serv_5	I find it easy to communicate with management or customer service
Keeping promises	serv_6	I believe that the service will be provided as promised
Convey a sense of community	serv_7	This site gives a sense of community
<b>Innovation</b>		
Uniqueness	inno_1	I feel that this product is unique compared to competitors
The novelty element	inno_2	I feel like discovering new things in this product

<b>Brand Trust</b>		
Make ends meet	trust_1	This brand provided what I was looking for
Reaching expectations	trust_2	This brand has always lived up to my expectations
Give trust	trust_3	This brand gives trust
Not disappointed	trust_4	This brand has never failed me
Honesty and sincerity	trust_5	This brand will provide a sincere and honest explanation
Reliability	trust_6	I can count on this brand
Give effort	trust_7	This brand will make every effort to satisfy me
Compensation	trust_8	This brand will pay me in several ways for problems with the product
<b>Customer Satisfaction</b>		
Make ends meet	satis_1	This website provided what I needed
Good experience	satis_2	Overall, I am satisfied with my experience using this website

## Research Model

To obtain the research objective, this study followed a research model which it illustrated in Figure 2.



**Figure 2.** Research Model

## Hypothesis

Hypothesis in this study is:

H <sub>1</sub>	The usability quality dimension has a significant positive effect on customer satisfaction
H <sub>2</sub>	The dimension of information quality has a significant positive influence on customer satisfaction
H <sub>3</sub>	The dimension of service interaction quality has a significant positive influence on customer satisfaction.
H <sub>4</sub>	Innovation has a significant positive influence on customer satisfaction
H <sub>5</sub>	Brand trust has a significant positive influence on customer satisfaction

## Population and Sample

The sample of this study uses purposive sampling, which is the technique of determining the sample by considering certain conditions. 20,000 population of this study is customers of the game X who have interacted with the event website and have knowledge of the game X product. The sample population was taken from the geo location function data on google analytics in 2019. The target number of samples was 384 people based on Slovin formula with an error limit of 5% (Tejada & Punzalan, 2012).

$$n = \frac{N}{1 + Ne^2} = \frac{20.000}{1 + (20.000)(0.05)^2} = 384$$

Where n is the number of samples, N is the population size, and e is the error limit.

## Data Analysis Method

Testing of the validity and reliability was carried out on the data that had been obtained through a questionnaire. PLS-SEM methods was used on this study data analysis, while the data testing used the SmartPLS software. PLS-SEM is a causal modeling approach that aims to maximize the variance described

from the dependent latent construct. Conceptually and practically, PLS-SEM has similarities with multiple regression analysis which aims to maximize the variance described in the dependent construct but also to evaluate data quality based on the characteristics of the measurement model (Risher, *et al.*, 2018). Other advantage of PLS-SEM that it provides a better understanding of increasing complexity by exploring the theoretical extension of existing theories in exploratory research and also when analysis is related to testing the theoretical framework from a predictive perspective (Risher, *et al.*, 2018). This study is an exploratory research, which the research purpose is to identify problems that have not been clearly defined.

## RESULT AND DISCUSSION

### Demographics of Respondents

The data was collected by using questionnaires to game X customers who live in Jakarta, Indonesia. The data used in this study was 405 respondents, there was extended 21 data analyzed on this study, it aimed to increase the validity and reliability of the data and reduce sampling errors. According to Lameck (2013), one of the methods to improve survey results is to increase the number of samples that represent the characteristics of the population. In addition, larger sampling can reduce data errors or bias and it helps accommodate population characteristics and increase sample populations representativeness. The data collected contains Likert scale data from research variables and respondent demographics, including age, gender, education, occupation, frequency of play, and duration of play. The demographic characteristics can be seen in Table 3.

**Table 3.** *Demographics of Respondents*

Characteristics	Frequency	Percentage
<b>Gender</b>	<b>405</b>	<b>100%</b>
Male	324	80%
Female	81	20%
<b>Age</b>	<b>405</b>	<b>100%</b>
< 12	5	1%
12 - 17	49	12%
18 - 25	243	60%
25 - 40	81	20%
> 40	27	7%
<b>Last Education</b>	<b>405</b>	<b>100%</b>
SD/MI	0	0%
SMP/MT	54	13%
SMA/SMK/MA	216	53%
D3/D4/S1/S2/S3	135	33%
<b>Occupation</b>	<b>405</b>	<b>100%</b>
Does not work	54	13%
Student	216	53%
Private employees	108	27%
Government employees	27	7%
Entrepreneur	0	0%
Others	0	0%
<b>Duration of plays</b>	<b>405</b>	<b>100%</b>
< 1 hours	108	27%
1 - 3 hours	162	40%
> 3 hours	135	33%
<b>Frequency of plays</b>	<b>405</b>	<b>100%</b>
1 - 2 times	27	7%
3 - 5 times	81	20%
6 - 8 times	162	40%
> 8 times	135	33%

### Satisfaction Indicator

The SmartPLS analysis to outer loadings each variable and its indicator result are presented in Table 4 and Table 5. While the hypothesis used in Bootstrapping test described in Figure 3 and t-table result in Table 6.

Composite Reliability Values test resulted that for all variables Usability Quality, Information Quality, Service Interaction Quality, Brand Trust, Innovation, Customer Satisfaction are valued  $> 0.7$ . This test result concluded that each individual satisfaction variable is reliable (Memon and Rahman, 2014); (Sujit and Rajesh, 2016).

**Table 4. Result of Internal Consistency Reliability**

Variable	Composite Reliability	Result
Usability Quality	0.9314	Reliable
Information Quality	0.9377	Reliable
Service Interaction Quality	0.9302	Reliable
Brand Trust	0.9458	Reliable
Innovation	0.8969	Reliable
Customer Satisfaction	0.8785	Reliable

Similar result found on each outer loadings variable which it was valued  $> 0.5$  (Table 5) of each individual satisfaction, it indicated that variables are reliable to squaring test (Memon and Rahman, 2014).

**Table 5. Result of Indicator Reliability**

Variable	Indicator	Loadings	Indicator Reliability (Loadings <sup>2</sup> )	Result
Usability Quality	usa_1	0.7452	0.5553	Reliable
	usa_2	0.844	0.7123	Reliable
	usa_3	0.7126	0.5078	Reliable
	usa_4	0.8113	0.6582	Reliable
	usa_5	0.8193	0.6713	Reliable
	usa_6	0.7965	0.6344	Reliable
	usa_7	0.793	0.6288	Reliable
	usa_8	0.8196	0.6717	Reliable
Information Quality	info_1	0.899	0.8082	Reliable
	info_2	0.7625	0.5814	Reliable
	info_3	0.899	0.8082	Reliable
	info_4	0.7567	0.5726	Reliable
	info_5	0.8467	0.7169	Reliable
	info_6	0.7859	0.6176	Reliable
	info_7	0.824	0.6790	Reliable
Service Interaction Quality	serv_1	0.8068	0.6509	Reliable
	serv_2	0.7809	0.6098	Reliable
	serv_3	0.7709	0.5943	Reliable
	serv_4	0.8555	0.7319	Reliable
	serv_5	0.8131	0.6611	Reliable
	serv_6	0.8398	0.7053	Reliable
	serv_7	0.7989	0.6382	Reliable
Brand Trust	trust_1	0.826	0.6823	Reliable
	trust_2	0.7747	0.6002	Reliable
	trust_3	0.8622	0.7434	Reliable
	trust_4	0.8989	0.8080	Reliable
	trust_5	0.8296	0.6882	Reliable
	trust_6	0.7574	0.5737	Reliable
	trust_7	0.8887	0.7898	Reliable
	trust_8	0.7777	0.6048	Reliable

Innovation	inno_1	0.9204	0.8471	Reliable
	inno_2	0.8826	0.7790	Reliable
Customer Satisfaction	satis_1	0.8473	0.7179	Reliable
	satis_2	0.9215	0.8492	Reliable

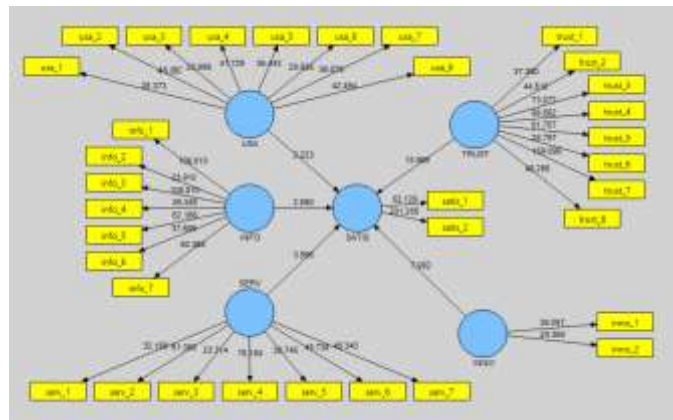


Figure 3. Result of Bootstrapping

Table 6. Path Coefficient of the Inner Model

Path	Original Sample	t-statistics	t-table	Result
USA → SATIS	-0.1489	2.2938	1.96	H <sub>0</sub> accepted
INFO → SATIS	0.1311	2.7884	1.96	H <sub>1</sub> accepted
SERV → SATIS	0.1898	4.1198	1.96	H <sub>1</sub> accepted
INNO → SATIS	-0.2871	8.0434	1.96	H <sub>0</sub> accepted
TRUST → SATIS	0.8979	14.1919	1.96	H <sub>1</sub> accepted

Details Hypothesis analysis result, summarized below:

- Hypothesis 1: the relationship between website usability quality and customer satisfaction has a significant relationship with the t-statistics value compared to the t-table of 2.2938 > 1.96. While, with original sample value of -0.1489 shown the direction of negative relationship. Therefore, website usability quality has a negative significant effect on customer satisfaction (H<sub>0</sub> is accepted and H<sub>1</sub> is rejected).
- Hypothesis 2: the relationship between website information quality and customer satisfaction has a significant relationship with the t-statistics value compared to the t-table of 2.7884 > 1.96., and indicated has a positive direction of the relationship (value of 0.1311) of the original sample. This result shown that the information website quality has a positive significant effect on customer satisfaction (H<sub>0</sub> is rejected and H<sub>1</sub> is accepted).
- Hypothesis 3: there is a significant relationship between service quality interaction on a website with customer satisfaction, there is a significant relationship with the t-statistics value compared to the t-table of 4.1198 > 1.96. The value of 0.1898 of the original sample shown relationship a positive direction. Therefore, website service quality interaction has a positive significant effect on customer satisfaction (H<sub>0</sub> is rejected and H<sub>1</sub> is accepted).
- Hypothesis 4: the relationship between innovation and customer satisfaction has a significant relationship with the t-statistical value compared to the t-table of 8.0434 > 1.96. While, with original sample value of -0.1489 shown the direction of negative relationship. Therefore, website usability quality has a negative significant effect on customer satisfaction (H<sub>0</sub> is accepted and H<sub>1</sub> is rejected).
- Hypothesis 5: the relationship between brand trust and customer satisfaction has a significant relationship with the t-statistical value compared to the t-table of 14.1919 > 1.96. The original sample value was 0.8979, it indicated that has a positive direction of the relationship. Therefore, brand trust has positive significant effect on customer satisfaction (H<sub>0</sub> is rejected and H<sub>1</sub> is accepted)

## DISCUSSION



This study produces a model that determines the effect of the quality of a website using WebQual 4.0, brand trust, and innovation on customer satisfaction. From the result presented at Table 6, shown that each research variable, namely usability quality, information quality, service interaction quality, innovation, and brand trust have a significant effect on customer satisfaction. However, innovation and usability quality have a negative effect on customer satisfaction. The dimensions of information quality and service interaction quality have a significant and positive effect according to previous research by (Permana & Salim, 2019) and (Kadar, *et al.*, 2017) while the usability quality dimension contradicts the results of previous research by (Tarigan, 2009), (Permana & Salim, 2019), and (Kadar, Napitupulu, & Jati, 2017). Brand trust which is the strongest predictor of customer satisfaction has been in accordance with previous research by (Saputra & Dewi, 2016), (Liao, *et al.*, 2010), (Gummerus, *et al.*, 2004), and (Erciş, *et al.*, 2012) which states that brand trust has a significant and positive effect on customer satisfaction. Research by (Simon & Yaya, 2012), (Naveed, *et al.*, 2012), and (Nemati, *et al.*, 2010) stated that innovation has a significant effect on customer satisfaction but this influence leads to a negative direction in this study.

The study found that companies need to focus on brand trust which is the strongest result of customer satisfaction which explains 89.8% of the variance in customer satisfaction. In addition, the results of hypothesis analysis shown that brand trust has a significant positive effect on customer satisfaction. The research respondents explained that the Company "A" provides services as the customer expected such as game discount, free of charge of the game's specific items and special price. In addition to that the company honest and does a quick responses to the customer complaint; act fast to handle the customer's problem, and also the company send appreciation message and compensation to the customer soon after the problem game problem solved. However, the company needs to improve the brand's ability aims to meet with customer demand. Customer satisfaction on the company's brand will enhance loyalty and trust to the company's game products. The viability and intentionality have loading value on average 0.84 and 0.81 are strong indication of the customer brand trust to company "A".

The website quality variables, namely information quality and service interaction quality, also have a significant effect on customer satisfaction. Nevertheless, to improve these two variables will not make a lot of change on the customer responses. It is indicated by low value rate of the loading on average 0.13 and 0.19 (Sujit and Rajesh, 2016). The customers of game X feel that most important related to information exchange is security of their transaction and private information. The research respondents expressed that the company "A" should guarantee that personal customer's informations are protected and secure as confidential information of the customers. Moreover, the customers inquired the company take immediate action in case any problem on information/interaction and communicate the result to customer that the action taken and the problem has closed.

In contrast to usability quality of the website, although the hypothesis test results have a positive responses by the respondents, but the variable has a negative influence on the customer satisfaction. It means that for the company "A" makes investment in this area (usability of the website) is not an urgent action. Therefore the company is not advised to make improvements in this area. This study result in correspondences with the research sample who they are teenagers and adults which have adequate education level on run websites. Similarly on innovation, it is also not recommended to do immediate improvement. The customers do not interest to explore a unique website elements. The users are more attracted to receive incentives from the company such as gift, token, price discount, etc.

## CONCLUSION AND RECOMMENDATION

### CONCLUSION

Usability quality has a significant effect on customer satisfaction but has a negative influence. This is because users are accustomed in running the websites. The age and education demographics of the site users which the majority are teenagers and adults have adequate skill on operating a website influenced significantly on usability website satisfaction.

Customers or users expect that company "A" provides accurate and trusted information and guarantee that confidential information of the customers are protected and secure. The customers are appreciated and satisfied with the company's incentives provided to customers, this interaction action has significant effect and lead to positive satisfaction of the game products of the company.

Users are not concerned with new or unique website elements, users are more interested incentive items or gifts. Therefore, company investment on innovation is not advised as urgent action for the company "A" in short time.

Company "A" should maintenance the costumers satisfaction on the companies' brand. Successful of the company on managing the brand trust of the costumers will lead to positive business and market of the game X.

## RECOMMENDATION

Increase investment of Company "A" on brand trust area including the brand's ability and maintaining service interaction with the costumers. The company should make sure that confidential information of the costumers are protected and secure.

Further research to be conducted beyond Jakarta City, to have a broader insight from costumers in Indonesia and other regions such as South East Asia and world wise.

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