An Extension of the Technology Acceptance Model for the E-Repurchasing of Sports Match Tickets

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ABSTRACT:
The purpose of the present study is to investigate effective factors in making people willing to repurchase sports match tickets online with the approach of extending technology acceptance model. This research is considered applied regarding its purpose, descriptive- survey regarding its method, and is based on Structural Equation Model (SEM). The participants are Iran's national volleyball team's fans in world league 2013 who have at least once purchased the tickets online. Data analysis of the questionnaire was done using SPSS18 and AMOS20.The results show that perceived trust has the highest impact on the attitude and intention of people to repurchasing sports match tickets so the better attitude will have towards using the system. Also perceived ease of use is in second that means as the purchasing system seems easier, desire to buy will be increased. Finally perceived usefulness of purchasing system can create positive attitudes about the use of technology.

Keywords: *Technology acceptance model, Fans, Trust, Sport ticket*

INTRODUCTION

The emergence of Internet and e-commerce applications in business has had dramatic effects on how people do things in societies in a way that e-commerce has turned into a vital tool in doing businesses and has made traditional businesses be forgotten. As a result, organizations have concentrated on their activities more deeply and have been specialized in their operational fields and competitive aspects. Today, the advantages of online shopping are undeniable (Ha and Stoel, 2012). Using this technology has made trade development and financial transactions available

and saved time and cost significantly. Online shopping is one of the recent dealing methods in non-physical retails (Oh et al., 2012). Rapid growth and increasing use of computer technology has provided retailers and buyers with the opportunity to have more effective communication through the Internet and to increase the efficacy of the exchange process. Hence, online shopping can be regarded as one of the major developments in retail worldwide (Liu and Forsythe, 2011; Rezaei et al., 2012). In this new method, the profit depends on people's willingness to use the available information

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system (Hsiao and Yang, 2011). This has resulted in doing some studies concerning adoption of and willingness to use information technology and its applications and highly clarified the importance of theories discussing the issue of willingness to choose electronic shopping methods. In this regard and in order to study buying behaviors, basic trend theories such as Theory of Reasoned Action (Fishbein and Ajzen, 1985), Theory of Planned Behavior (Ajzen, 1989) and Technology acceptance model were used as valuable tools. The technology acceptance model is a suitable model to describe the use and acceptance of information technology (Park and Pobil, 2013). With the development of electronic shopping and stores that offer these services, increasing competition among them is inevitable. This increasing competition among the e-stores has more visibly indicated the managers of these institutions the significance of accepting this technology by customers and also the significance of the factors which cause customers to intend to shop online. Therefore, it is better to make clear why customers are willing to buy online because customers' willingness and acceptance is the key factor in the development of e-services (Byers and Lederer, 2001) so that if customers do not welcome them, these e-services will definitely fail (Aladwani, 2001). Due to great investments in information technology systems, competition expansion and intensity and provision of quite the same services from the institutions and stores, the institution survival depends on recognizing the reasons why people intend to buy online. However, with regard to the investments of the institutions in this field, the result and return becomes very important for them which consequently highlights the crucial role of people in accepting the technology and willingness to use it (Yi and Hwang, 2003).

According to the above-mentioned, the main issue which led to the present study is to investigate the factors affecting customers' (sports teams' fans) willingness to shop online, because being aware of these factors can significantly contribute to this technology (e-shopping) for its future policies and can encourage fans to use these services. The present research, using the extension of technology acceptance model, deals with the factors

affecting Iran's national volleyball team's fans in the World League to intend to buy tickets online.

Literature Review

Technology acceptance model (TAM) is one of the most effective approaches to accept information technologies by users (Park and Kim, 2013). According to Davis (1989), this model seeks to explain and predict the users' acceptance of Information Technology (IT) in workplaces. This is an adaptation of the theory of rational action (McGill and Bax, 2007; Kim et al., 2008) which determines the attitude towards behavioral tendencies and benefits of using information technology (Lin, 2007) and has two major features of perceived usefulness and ease of use (Al-maghrabi and Dennis, 2010). Perceived usefulness has been defined as users' profound attitude to a special and applied application of a system which enhances their performance at work (Lee, 2009). Ease of use has also been defined as the extent to which the users expect the system to be free of effort (Ha and Steol, 2009).

These two beliefs (ease of use and perceived usefulness) are effective in the user's attitude toward using the system (Kesharwani and Visht, 2012; Attafar et al., 2012). It should be noted that attitude along with usefulness influences willingness. Over 400 articles in different scientific journals have documented Davis's technology acceptance model (Venkatesh and Davis, 2000; Rezaei et al., 2012). The studies done on technology acceptance model have confirmed the relationship between perceived usefulness and attitude and behavioral tendencies (Reimenschneider and Hardgrave, 2001). The technology acceptance model has been used to study the internet technology acceptance on behalf of users. For example, to test the technology acceptance model, Lederer et al. (2000) made use of the data, taken from 163 participants who used the internet to do their work. Data analysis confirmed the technology acceptance model as well. Moreover, researchers adapted the theory of planned behavior in the technology acceptance model and developed innovations in the literature to study the Internet acceptance by users (Rogers, 1983). For instance, Chen et al. (2002) had tested a modified technology acceptance model

2

including adaptation and creation of a belief to explain consumers' attitudes towards shopping from virtual stores. Agarwal and Prasad's survey (2002) also confirmed the assumption that diffusion of innovation influences the basic use of the World Wide Web (WWW). Tan and Teo (2000) also used the features of innovation diffusion; however, their study was on banking acceptance, including the theory of planned behavior, which showed that received behavioral control was a meaningful predictor of tendencies towards online banking services, whereas this was not the individuals' norms. The results are inconsistence with those of Bhattacherjee's research (2000). In his research, the individual's norms had a significant effect on the tendency to use electronic services, while the received behavioral control was not the same.

Based on the research literature and consultation with academic experts and professionals, the technology acceptance model was revised according to the conditions of our country and the study population. The variable of confidence was added to the proposed model which will be discussed in the following topics.

RESEARCH METHOD

As the researcher seeks to assess the impacts among variables, the research method is qualitative and of structural equation modeling. Regarding the fact that the present research aims at investigating the factors affecting the fans' tendency to shop through the internet, the study population includes all of Iran's national volleyball fans in the World League 2013 who have at least once purchased the tickets of the matches online. Because all of the tickets have been sold online in Iran, the number of the research population is at least 12000 people. Due to the high number of the population, first a basic study was done to determine the sample population, and then the standard deviation was calculated to be 0.825 using only 30 fans. Sample size formula is the following:

$$n = \frac{N z_{\frac{\alpha}{2}}^{2} \times \delta^2}{(N-1)d^2 + z_{\frac{\alpha}{2}}^{2}\delta^2}$$

N: Population

d: Estimate accuracy

n: Amount of sample

δ : Standard deviation

$z_{\frac{\alpha}{2}}$: Normal variable corresponding with confidence level of $100(1-\alpha)$ percent

Thus, the sample size is equal to:

$$255 = \frac{(12000) \times (1.96)^2 \times (0.825)^2}{(12000-1) \times 0.1^2 + (1.96)^2 \times (0.825)^2}$$

Regarding to this standard deviation and confidence of %95 and estimation error of the mean maximum 0.1 on the population, sample size was approximately 255 persons. Using the formula of calculating the sample population, the researcher determined 255 people, but in the end almost 260 people filled the questionnaire in order to have the desired sample.

Data collection was done using a Likert 5-scale questionnaire. To assess the specified beliefs in the technology acceptance model (ease of use, usefulness, attitude and tendency), Vijayasarathy's questionnaire (2004) and Wu's confidence questionnaire (2013) were used.

To make sure of the validity of the questionnaire, content validity was used in a way that the primary questionnaire was first reviewed by asking experts' opinions in the field of sports management, marketing management, e-commerce and consumer behavior about the number of questions, how to express them, their order and range of response options. After considering theses people's opinions, the questionnaires were distributed among a number of supporters of Iran's national volleyball team and they were asked to express their ideas about the distinctness of the sentences in the questionnaire and their comprehensibility. At the end, and after several stages of review and a pilot phase, the final questionnaire was formulated.

To confirm the construct validity of the questionnaire, confirmatory factor analysis was used for the ones whose results verified the validity of the questionnaire. The research has used Cronbach's alpha to determine the reliability of the questionnaire. The results of the confirmatory factor analysis and the reliability of the variables have been shown in table 1.

Table 1: Results of factor analysis and reliability tests

Variable	items	Factor loading	α
Perceived ease of use	PE1	0.82	
	PE2	0.72	
	PE3	0.81	0.84
	PE4	0.66	
Perceived usefulness	PU1	0.91	
	PU2	0.85	
	PU3	0.89	0.91
	PU4	0.75	
Perceived Trust	PT1	0.78	
	PT2	0.85	
	PT3	0.76	0.88
	PT4	0.83	
Atitude	AT1	0.88	
	AT2	0.93	
	AT3	0.71	0.91
	AT4	0.91	
Repurchase Intention	RI1	0.78	
	RI2	0.76	
	RI3	0.91	0.88
	RI4	0.76	

Finally, after distributing and collecting the questionnaires, the data were analyzed using SPSS18 and AMO20. The results are presented in the following sections.

This research has used structural equation modeling to analyze the hypotheses and evaluate the overall fit of the model. In structural equation modeling, the adapted amount of research and conceptual models were checked on the one hand to see whether it enjoyed the overall fit, and on the other hand the significance of the relationships in the overall fit model was tested. The variables of the overall fit included CMIN/df, RMSEA, GFI, AGFI, NFI, and CFI. A model is overall fit if CMIN is less than 3 related to the degree of freedom (df), the value of RMSEA is less than 10% and the values of GFI,

AGFI, NFI, and CFI are more than 90% (Khazaei et al., 2013).

Research Model and Hypotheses

Figure 1 shows the research model. This model is taken from Davis's technology acceptance model (1989). In this research model, in addition to the two core characteristics of the technology acceptance model, another variable (trust) that is related to the consumers' interests and behaviors (online shoppers) has been added regarding the conditions of the research community and previous researches in the field of online shopping and sports management experts' opinions, e-commerce and consumer behavior experts' opinions.
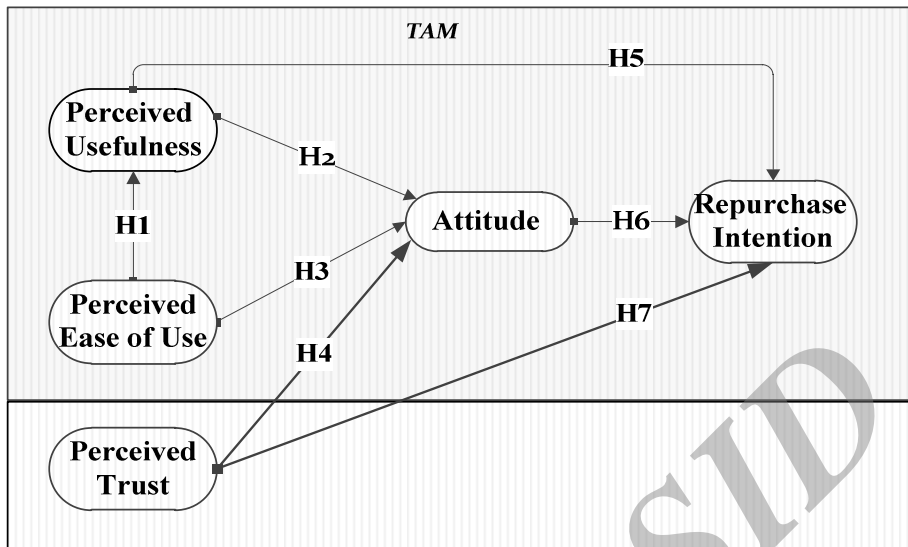
4

Figure 1: Research model

Table 2: Total fit indices of measurement models

Variable \ Indices Name	Cmin/df	GFI	AGFI	CFI	RMSEA
Perceived ease of use	2.25	0.95	0.94	0.93	0.042
Perceived usefulness	2.83	0.93	0.92	0.95	0.071
Perceived Trust	1.55	0.97	0.96	0.96	0.008
Attitude	2.27	0.95	0.95	0.96	0.047
Repurchase Intention	1.82	0.96	0.94	0.95	0.036
Recommended Value	Between 1~3	>0.90	>0.90	>0.90	0.10>

Note: CFA, confirmatory factor analyses; GFI, goodness-of-fit index; AGFI, adjusted goodness-of-fit index ;RMSEA, root mean square error of approximation.

According to the above model (figure 1), the research hypotheses were set as follows:

H1. Perceived ease of use will have a positive effect on perceived usefulness.

H2. Perceived usefulness will have a positive effect on attitude.

H3. Perceived ease of use will have a positive effect on attitude.

H4. Perceived Trust will have a positive effect on attitude.

H5. Perceived usefulness will have a positive effect on repurchase intention.

H6. Attitude will have a positive effect on repurchase intention.

H7. Perceived Trust will have a positive effect on repurchase intention.

RESULTS

To specify the extent to which the variables are acceptable for the measurement models, they should be first analyzed separately. Based on this method, 5 measurement models related to the variables are first piloted separately. Overall fit variables for the measurement models are given in table 2.

5

Regarding the results of the table, it can be concluded that the measurement models are overall fit. In other words, the overall indices confirm the fact that the data support the models well.

After reviewing and confirming the measurement models in the first step, to test the hypotheses, structural equation modeling was used in the second step. The overall fit indices of the final research model are given in table 3.

According to the above information, it can be concluded that the overall indices represent the overall fit of the model by the data, or it can be mentioned that the collected data support the model well. Structural equation modeling and the regression coefficients are given in figure 2.

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Table 3: Total fitness indices of the survey

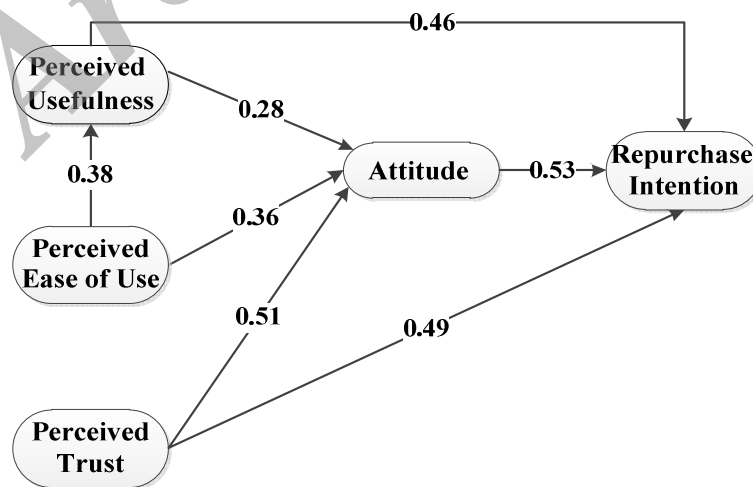| Indices Name / Variable	Cmin/df	GFI	AGFI	CFI	RMSEA
Final Model	2.61	0.96	0.94	0.95	0.078
Recommended Value	Between 1~3	>0.90	>0.90	>0.90	0.10>

Figure 2: Results of structural modeling analysis

6

After reviewing and confirming the model, two partial indices of critical Ratio (CR) and ρ were used to test if the hypotheses were significantly meaningful. CR is the ratio which results from the division of regression weights multiplied by standard error. At 0.05 significance, CR should be higher than 1.96. If lower, the related parameter in the model is not considered significant. Also, the amounts of lower than .05 for ρ denote a significant difference between the calculated amounts for the regression weights of zero at .95 confidence level. The hypotheses along with regression coefficients and partial indices amounts related to each hypothesis are given in table 4.

According to the results of table 4, all the hypotheses of the research were confirmed.

DISCUSSION

As shown in the results of testing the research hypotheses, three effective dimensions on fans' attitudes were various from which trust had the highest effect on attitude. This means that the more understanding the users are to the reliability of purchasing the match tickets online, the better attitude they will have towards using the system, which is consistent with the results of Wu et al. (2011) and Bianchi and Andrews (2012). Customers are sensitive to purchasing goods electronically and in general conduct e-commerce due to their personal and confidential information. They feel insecure because of the probability of uncovering them. This is where trust and security gain importance, Grazioli and Jarvenpaa (2000). Organization managers should notice that they have to stabilize their organization's situation in their customers' minds while making them believe they are highly reliable to be able to establish a strong relationship with them. According to the results, perceived trust is the most effective factor in making positive attitudes in customers to purchase online so that the higher their perception of online shopping of the tickets, the higher the probability of using the method. After trust, the highest positive effect on attitude goes to the dimension of ease of use, meaning that the increase in perceiving the ease of use of technology (online ticket purchase) gives rise to positive attitude to using it. The results of the research in terms of ease of use correspond those of the researches by Vincent Chang (2004), Huang et al. (2006), Saadé and Kira (2006), Kim et al. (2008) and Baier and Stuber (2010). Regarding the results, perceived ease of use predicts the positive attitude to technology application. In other words, an increase in the perception of ease of use can create a positive attitude towards technology application. Usefulness dimension takes the third level of effect on positive attitude to purchasing tickets online.

Table 4: Regression coefficients and results of hypotheses test

Hypothesis	Path			β	C.R	*P*	Result
H1	*PE*	→	*PU*	0.38	3.21	**	Supported
H2	*PU*	→	AT	0.28	2.95	**	Supported
H3	*PE*	→	AT	0.36	3.06	**	Supported
H4	*PT*	→	AT	0.51	7.59	***	Supported
H5	*PU*	→	RI	0.46	6.03	***	Supported
H6	AT	→	RI	0.53	8.12	***	Supported
H7	*PT*	→	RI	0.49	6.47	***	Supported

Note: *** *p*< 0.001, ** *p*< 0.01, PE= Perceived ease of use; PU= Perceived usefulness; PT= Perceived Trust; AT= Atitude; RI=Repurchase Intention .

In researches done by Vincent Chang (2004), Huang,Wei, Yu and Kuo (2006), Saadé and Kira (2006), Kim et al. (2008) and Baier and Stuber (2010), the perceived usefulness predicted the positive attitude to applying technology which are consistent with the results of the present research. Increasing the perception that technologies can improve individuals' official chores in organizations, improve and accelerate people's doing their activities (online shopping) and enable people to compare their purchases can make us prove that purchasing match tickets online is useful; thus this increased perception of its usefulness, at the same time, can make a positive attitude towards online shopping.

Based on the results, the perceived ease of use influences the perceived usefulness of purchasing match tickets online and, according to the research model, affects users' attitudes (via the perceived usefulness) indirectly. In researches done by Huang (2006), Saadé and Kira (2006), Savitskie et al. (2007), Kim et al. (2008), and Lin, Wang and Hwang (2010), the perceived ease of use had a positive effect on the perceived usefulness of online shopping which corresponds the results of our research. The results show that the perceived usefulness of online shopping is effective in the individuals' tendency to utilize online shopping modes which are parallel with the results of the studies by Huang et al. (2006), Savitskie et al. (2007), Hernandez et al. (2008) and Ahmadi Deh Ghotbeddini (2010). According to the research method and testing the hypotheses, usefulness dimension also affects people's tendency to electronic purchasing both directly and indirectly. As a result, the factors which promote this dimension gain significance. The results of the research denote that people's attitude to online shopping is influential in their tendency to use this method of shopping, which agree with the results of the researches by Baier and Stuber (2010), Lin et al. (2010), Ahmadi Deh Ghotbeddini (2010) and Atafar et al. (2012). Being affected by the above-mentioned dimensions, people's attitudes can be directed. We can also predict why people choose specific factors, which is the same as finding out their tendency in different fields. The results, which are consistent with those of Jang and Noh (2011), Chiu et al. (2012), Kim et al. (2013), show that the perceived trust to online shopping affects people's tendency to use internet shopping modes.

CONCLUSION

It can be generally concluded that predicting users' tendency and their accepting the technology (online shopping) should be considered as a Prismatic and multifaceted phenomenon and Surface-oriented approach to the selection and related scheduling should be avoided. Using information technology has made us achieve trade development, financial and economic transactions and has saved time and cost dramatically. Data and statistics reflect the fact that purchasing sports tickets via internet is growing and forecasts indicate that this trend is continuing. In the present study, we considered the relationship between the variables related to the attitude and tendency to purchasing volleyball match tickets online. The analysis of the results reveals that the research obvious beliefs such as ease of use, usefulness and trust are related to assess the attitudes to online purchases and that there is a strong relationship between attitudes and tendency.

Regarding the positive results of the present research and the need for further expansion of using internet to purchase popular sports events such as wrestling, volleyball and football and in order to make people more willing to it in Iran, the fact that seems apparent is that this process and its execution has being performed in the west for years which has been successful too, so to correctly perform it in Iran and to make it widespread taking some actions is necessary and in order to do that the results of researches done in other countries should be used so that Iranian organizations achieve the ability to make the activities such as increasing trust and keeping personal information safe while doing online shopping part of their culture and inform people about saving their time and cost, because these factors are parts of the reasons whose strength or weakness increases or decreases the tendency to shop online. Foreign countries have been doing it for years proving their development in this area. It should be mentioned that online shopping has been used in Iran since recent years and there is not definitely enough infrastructure available, thus we still need to try to make it part of our culture. However, the results of the present research are comparable

with those of foreign researches presented in discussion section. Another fact which differentiates between online shopping in Iran and online shopping in other countries is that these types of shopping are quite limited to using bank cards in Iran, while there are other modes of internet shopping in other countries, so we need to take attempts to develop these modes in Iran. This can make a difference between the results of domestic researches and those of foreign researches so that the results of the present research are not even comparable with those of researches which include using other modes of internet shopping, but are only comparable with the results of the researches in which bank cards were solely used, because people's attitude and tendency cannot be considered as factors such as ease of use, usefulness and other variables. As a result, domestic researches cannot be compared with all the researches done in foreign countries completely, because the conditions of domestic researches are involved in these comparisons.

Management Applications

The results of the present study can make develop and improve internet shopping systems of sports match tickets, In this section we suggested two major factors that both of them are important.

First of all it seems, hardware Factors which are necessary to Internet Shopping must be created. These factors are include Internet access, high Speed Internet, designing the sales sites and etc. reviewing the areas to access the internet is essential for Create a framework for a Internet Shopping According to the results and people's positive attitude and tendency to internet shopping, the point which should be paid attention to is that other types of electronic shopping used in other countries which correspond more with our culture should also be implemented.

after that, the software Factors can play important role in Internet Shopping these factors are included: educating customers about the Internet Shopping , informing people about advantage of Internet Shopping improving the ability in Using the computer and Internet and the others. Train users, and mention the advantages of using internet to increase people's presence in sports sites leading to increasing

customers. To increase trust, security and customers' confidence to shop online, organizations are better to take actions such as increased security of sales sites, information about compensation for customers, educating customers about the services, informing people about the organizations that support them, gaining customers' trust, and informing the public about the legitimacy of their activities, and finally giving people complete information on activities and permissions to ensure them of online shopping. It is recommended that sports organizations and clubs inform people of the benefits and ease of use of online shopping with the help of appropriate advertisement, and also identify factors which are effective in using IT easily. Link to famous clubs and brands can lead to increase the number of customers by impressing their beliefs and attitudes which, according to the results of this study, can directly affect people's willingness to buy online. In the end, the authorities in charge of selling volleyball match tickets online can design a section in the site called complaints and full support to prove their competence in respecting customers. This, indeed, needs education and awareness and providing a suitable context to accept in Internet Shopping .

Limitations and Further Research

Although the goals of the present study have been accomplished, the limitations should also be considered. On the other hand, every research normally faces some obstacles, problems and limitations, however, this does not mean the results cannot be utilized or do not have significant effects. The limitations and problems are as follow:

Firstly, this research has focused on online purchasing of World Volleyball match tickets, so the results cannot be generalized for purchasing other products on the internet because the challenges and the effective factors in purchasing these tickets are different from those of other purchases. Secondly, this study has only considered those fans that had online purchased the match tickets of the World Volleyball League played in Iran. So, regarding the structural, cultural and individual differences of fans in Iran, it is less possible to generalize the results to other countries or it should be done with caution in case of having similarities.

Thirdly, the data for this study have been collected during the growing use of Internet in Iran for shopping sports tickets. As technologies become more widely used, following factors affecting the adoption of a more rational use of these technologies will be more reasonable. In addition, all the data were collected using a cross-sectional study, so the variables and their results may be limited to a period of time.

Future researches should follow the outcomes of implementing Internet purchasing of sports events tickets from the first growth stage to the final maturation stage. Further research can investigate effective factors in the acceptance of Internet shopping of other sports events tickets such as football, basketball and wrestling.

Since this is one of the first empirical studies based on the factors influencing the adoption of Internet shopping for purchasing Volleyball World League match tickets, thus reflecting the this topic along with additional examples is important to generalize the findings. The present research is typically a quantitative one; however, the trend is increasing in qualitative Research in Sport Management. Therefore, it is recommended that future research investigate deeper in terms of the quality of the product development process with respect to the related strategies such as case study, empirical study and so on.

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10

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