Research on the Relevance of University Students' Sports App Technology Acceptance and Useage Satisfaction

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Abstract: The purpose of this research was to explore the relationship between college students' acceptance and usages satisfaction with sports APP technology. This study was based on 668 college students who participated in the trail running sports APP activities, and used the online questionnaire survey method. This research tool used Sports APP Technology Acceptance Scale and Usage Satisfaction Scale. Reliability analysis showed that Cronbach's α were a value of 0.97 and 0.98. Data analysis used SPSS software for analysis. The results of this study were as follows: 1. College students of different genders had significant differences in the acceptance of science and technology and the degree of satisfaction in usages; 2. "Perceived usefulness" and "perceived ease of use" had a moderately positive correlation with continued use intention; 3. There was a moderately significant positive correlation between the acceptance of science and technology and the degree of satisfaction. The conclusion of this study pointed out that the acceptance and satisfaction of college students for sports APP technology were high, and this result also took advantages of physical exercise in physical education class.

***Keywords*:** Sports APP；Technology Acceptance；Usage Satisfaction

Introduction

With the continuous improvement of the level of science and technology, China's sports industry had also experienced a blowout, and the ways and forms of participating in sports have also undergone tremendous changes. In recent years, the continuous popularization of network mobile devices has created good conditions for sports APP exercise and college students' participation in sports. Traditional physical education could no longer meet the needs of students' physical learning, so physical education was bound to develop in the direction of integration with science and technology. Therefore, colleges and universities continued to innovate teaching methods and change teaching concepts to fully adjust students' learning enthusiasm. At the same time, they also continued to expand time and space boundaries of physical education to improve students' comprehensive quality. Therefore, sports APP applications assisted teaching models were fully implemented. After these years of exploration and practice, beneficial results had been achieved. But for college students who were the main users of sports apps, what is the subjective understanding that the adoption of new technologies may increase the utility of sports apps? Therefore, this research wanted to explore the relationship between the "perceived usefulness" and "perceived ease of use" of college students for the continuous use of sports APP, simultaneously, the correlation with the satisfaction of use.

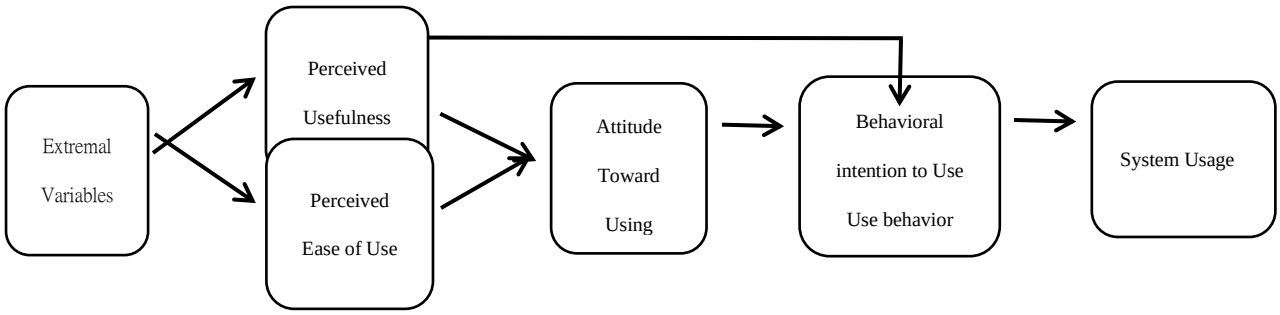

Figure 1 Framework diagram of technology acceptance mode(derived from：Davis,

Fred D., Bagozzi, Richard P. & Warshaw, Paul R. (1989) User acceptance of computer technology: a comparison of two theoretical models. Management Science.35(8), p.985.)[1]

Technology Acceptance Model (TAM) means that people's use of information technology is affected by their behavioral intentions. It can be used to explore the influence of external factors on users' internal beliefs, attitudes, and intentions, as well as further affect the use of information system. The model of technology acceptance model, as shown in Figure 1. TAM proposes two crucial aspects. One is "Perceived usefulness", and the other is "Perceived Usefulness". These dimensions were used to evaluate users' attitudes towards the use of information technology systems. In other words, the technology acceptance model uses "perceived usefulness" and "perceived ease of use" as the main factors to determine the degree of personal acceptance of technology. When users hold an attitude toward new technology (Attitude toward Using; ATU), the attitude will further affect behavioral intention (Behavioral Intention to Use; BI). Besides, "perceived usefulness" directly impacted actual use behavior (Actual System Use; ASU). Each aspect is described as follows: "Perceived usefulness": refers to the subjective belief that the use of this technology is helpful for job performance and the future. In other words, when an individual believes that the system is more useful, the more positive attitude it will adopt to the system; "perceived ease of use": refers to the degree to which technology is easy to use. When the system is easier to use, users will have more confidence in self-efficacy and self-control, which in turn affects user behavior. As far as the design of a system is concerned, whether the system is simple or easy to learn. It will affect the user's motivation to accept the system and affect the behavior of using it. Therefore, perceived usefulness is the main factor that affects behavior intentions, and perceived ease of use is a secondary factor. These two factors are the most important factors for individuals to decide whether to use the technology. The core elements of TAM have perceived usefulness and perceived ease of use. Are they related to the system quality (design and operation), information quality (information output/output), and overall quality of sports apps? Thus this study adopts methods such as literature data method and questionnaire survey method to analyze the acceptance and satisfaction of modern college students' sports APP technology and demonstrate their relevance is the focus of this article. The objectives of this study are as follows:

1. Understand the differences in the acceptance and satisfaction of sports APP technology among college students of different genders and grades.
2. Understand the difference between the "perceived usefulness" and "perceived ease of use" of college students' continuous use intentions for sports apps.

3. Understand the relationship between the acceptance of sports APP technology and the satisfaction of college students.

Methods

1. Research object

In this study, students from one to the third grade of Jiangxi Vocational College of Tourism and Commerce in Jiangxi Province were selected for sampling to participate in the trail running sports APP activities. A total of 668 college students were selected. Among them are 267 males (40%), 401 females (60%), 646 freshmen (96.7%), 16 sophomores (2.3%), and 6 juniors (0.9%).

2. Research hypothesis

According to the purpose of this research, the research hypothesis is as follows:

H1 There is a difference between male and female college students in sports APP technology acceptance and usage satisfaction.

H2 There is a difference in the acceptance of sports APP technology and the satisfaction with the use of sports APP in the grades of H2 college students.

H3 College students' "perceived usefulness" and "perceived ease of use" have significant differences in their intention to continue using sports apps.

H4 Sports APP technology acceptance of college students (significantly related to satisfaction with use.

3. research instrument

This research survey has three parts, including personal background information, sports APP technology acceptance measurement, and usage satisfaction scale, which are described as follows:

1. Personal background information

This study will adopt the gender and grade of the participants as the basic data resources. 2. sports APP technology acceptance measurement

According to the technology acceptance model, the questionnaire is divided into (1) "perceived usefulness" with 5 questions, with the credibility of Cronbach's α value of .97; (2) "perceived ease of use" with 4 questions with the credibility of Cronbach's α The value is .79; (3) There are 8 questions for "continuous use intention", and the reliability Cronbach's α value is .97; the total scale has three parts and 18 questions, and the overall reliability Cronbach's α value is .97, which means High internal consistency. This scale uses a Likert-type five-point scale to indicate strongly disagree, disagree, normal, agree, and strongly agree with 1, 2, 3, 4, and 5 points. The higher the score is, the higher its technological acceptance mode is.

3. usage satisfaction scale

This study uses a reference to DeLone & McLean (1992, 2003)[2-3], Bhattacherjee (2001), McKinneyetal. (2002)[4], Jandateal. (2002), Severt (2002), Kimetal. (2009), Yang Zhengda (2004)[5], Liao Mingzhu (2007)[6], Liu The research and discussion of Tai Yi (2012)[7], Wu Peifen (2014)[8], and others have been modified to use a satisfaction evaluation scale, which is divided into (1) satisfaction meter 5 questions (2) recommendation meter 2 questions (3) Use the scale meter for 1 question again, the overall reliability Cronbach's α value is 0.98, this scale is represented by a Likert-type five-point scale with 1, 2, 3, 4, and 5 points Strongly disagree, disagree, normal, agree, and strongly agree. The higher the score, the higher the degree of evaluation.

Data processing and analysis

This study used SPSS software to analyze the data which was collected. The method is as follows: (1) In descriptive statistics, the average (M) and standard deviation (SD) are used to analyze the basic data of college students, including gender and grade. Next, it analyzes the status of college students' acceptance and satisfaction evaluation of sports APP technology with descriptive statistics. (2) An independent sample *t*-test was used to analyze the differences in the acceptance of sports APP technology and the degree of satisfaction of the use of sports APP by gender. (3) The variance of independent samples is used to test the difference between the acceptance of sports APP technology and the degree of satisfaction with the use of sports APP. (4) To analyze whether college students' perceived usefulness and perceived ease of use within the acceptance of sports APP technology are predictive of continued use intentions by linear regression.

(5) Use Pearson correlation coefficient to test the relationship between university Vivid APP technology acceptance and satisfaction evaluation. The significance level of the statistical test in this study is set as α=0.05.

Results and discussion

The gender differences in sports APP technology acceptance and use satisfaction among college students are as follows:

Using independent sample *t* test analysis results (as shown in Table 1), it is found that the acceptance of sports APP technology by college students of different genders is t(666)=3.86, $p<0.001$, and the degree of satisfaction t(666)=3.89, $p<$ Significant difference up to 0.001. Therefore, in the acceptance of sports APP technology, male college students (M=3.85, SD=1.05) are higher than female college students (M=3.54 SD=0.99), indicating that men's sports APP technology acceptance is higher than that of women. In terms of user satisfaction, male college students (M=3.79, SD=1.14) are higher than female college students (M=3.44, SD=1.12), indicating that men's satisfaction degree is higher than that of women.

Table1 the *t* test of college students' gender in sports APP technology acceptance and sports behavior

	Mean (standard deviation)		*df*	*t* value	*p*
	male (*N*=267)	femal (*N*=401)			
Sports APP technology acceptance	3.85(1.05)	3.54(.99)	666	3.86***	.000
usage satisfaction	3.79(1.14)	3.44(1.12)		3.89***	.000

*$p<.05$**$p<.01$***$p<.001$

2. The difference between the acceptance of sports APP technology and the degree of satisfaction with the use of sports APP in the grades of college students; In this study, single-factor variance ANOVA was used to analyze the effects of college students' acceptance of sports APP technology and satisfaction with the use of sports APP (see Table 2). The results showed that there was no significant difference in sports APP technology acceptance F(2,665)=54, $p=.581>.05$ and satisfaction degree F(2,665)=.14, $p=.866>.05$ among college students of different grades. It means that there is no significant difference in the acceptance of sports APP technology and the degree of satisfaction among college students in the first, second, and third grades.

Table 2 ANOVA analysis of the acceptance of sports APP technology and the degree of satisfaction in the use of sports APP in the grades of college students

Source of variation	*SS*	*df*	*MS*	*F*	*p*	η_p^2
Grade*Sports App Technology Acceptance	1.139	2	0.570	.54	.581	.002
error	696.94	665				
sum	56.035					
Grade*satisfaction with use	.375	2	.187	.14	.866	.000
error	867.023	665				
sum	867.397					

*p<.05**p<.01***p<.001

3. The difference between college students' "perceived usefulness" and "perceived ease of use" for the continuous use of sports APP. Regression analysis was used to test the relationship between "perceived usefulness" and "perceived ease of use" and continued use intention. The results are shown in Table 3. The results show that there is a high degree of positive correlation between perceived usefulness and continuous use intention, β=.68, p<.001, indicating that the higher the perceived usefulness, the higher the continuous use intention. Besides, there is also a moderately positive correlation between perceived ease of use and continuous use intention, β=.29, p<.001, indicating that the higher the perceived ease of use, the higher the continuous use intention.

Table 3 Linear regression of perceived usefulness and perceived ease of use on continuous use intention

	Continuous use intention		
	B	*SEB*	β
Perceived usefulness	.829	.029	.69**
Perceived ease of use	.395	.033	.29**
R^2	.87		
$AdjR^2$	.87		
F	2300.01**		
df	(2,665)		

注：*N*=667
*p<.05**p<.01***p<.001

4. Relevant situation of college students' sports APP technology acceptance and usage satisfaction

In this study, the Pearson correlation analysis results (32, p<.01) and continuous use intention [r(238)=.952, p<.01] and the degree of satisfaction with use are both significant (Table 4), and the results found that the perceptual usefulness [R(665)=.901,p<.01], perceptual ease of use [r(238)=.8 is related, and it is a moderately positive correlation, which means perceived usefulness, perceived ease of use, and continuous use intention. The higher the degree, the higher the satisfaction degree.

Table 4 Correlation matrix between sports APP technology acceptance and usage satisfaction (N=667)

	1	2	3	4
1.Perceived usefulness	-			
2. 2. Perceived ease of use	.814**	-		
3. Continuous use intention	.920**	.845**	-	
4.APP usage satisfaction	.901**	.832**	.951**	-

*p<.05**p<.01***p<.001

Conclusion

1. There is a significant difference in the acceptance of science and technology and the degree of satisfaction among college students;

The results of this research show that college students of different genders have significant differences in the acceptance of technology. In the acceptance of sports APP technology, "perceived usefulness", "perceived ease of use" and "sustained use intention" all show that male college students are higher than females College Students. In terms of user satisfaction, the system quality of sports APP has a positive and significant impact on user satisfaction. The secondary result is consistent with the argument that "system quality will significantly affect user satisfaction" put forward by DeLone & McLean (1992)[9]. In short, when the system quality of a sports app is improved, it will significantly positively affect (improve) the app's user satisfaction, especially the improvement of the "accessibility" dimension, which is the most effective for the improvement of user satisfaction. influences. The information quality of sports apps has a positive and significant impact on user satisfaction. This result is consistent with the argument that "information quality will significantly affect user satisfaction" put forward by DeLone & McLean (1992)[9]. In short, when the information quality of a healthy weight management app is improved, it will significantly positively affect (improve) the app's user satisfaction, especially the improvement of the "personalization and relevance" dimension, which will have a significant impact on user satisfaction.

Both the system quality and information quality of sports apps have a significant positive impact on user satisfaction. This result is in line with DeLone&McLean (1992), Seddon&Kiew (1996)[10], Lin&Lu (2000), McKinneyetal (2002)[13], and others. "System quality and information quality will significantly affect user satisfaction" is consistent with the argument. In short, when the system quality and information quality of a sports app is improved, it will significantly positively affect (improve) the app's user satisfaction. In summary,

the gender of college students has significant differences in technology acceptance and user satisfaction, and male college students' sports APP technology acceptance is higher than female college students. The research also found that male college students and female college students are satisfied with their use. , The use satisfaction of male college students is higher than that of female college students.

1. "Perceived usefulness" and "perceived ease of use" have a moderately positive correlation with continued use intention.

This research has learned that the perceived usefulness and perceived ease of use of college students' acceptance of sports APP technology are tested by regression analysis to test the relationship between "perceived usefulness" and "perceived ease of use" on the relationship between continuous use intentions, and perceptual usefulness. There is a high degree of positive correlation with continuous use intention, which means that the higher the perceived usefulness, the higher the continuous use intention. On the contrary, the lower the perceived usefulness, the lower the continuous use intention. Besides, there is also a moderately positive correlation between perceived ease of use and continuous use intention, indicating that the higher the perceived ease of use, the higher the continuous use intention. To sum up, it can be concluded that "perceived usefulness" and "perceived ease of use" have a moderately positive correlation with continued use intention. The conclusion of this study points out that there is a moderately significant positive correlation between the acceptance of science and technology and the degree of satisfaction of usage. It means that the higher the degree of perceived usefulness perceived ease of use, and continuous use intention, the higher the degree of satisfaction with use, and the higher acceptance and satisfaction of college students with sports APP technology.

Sports APP, as a sports software on smart facilities, enables it to realize the unity of daily training in fitness and physical education in the use of smart facilities and introduces sports APP to the auxiliary guidance of college students' physical exercise, which can play the value of sports APP. The role of harmony inspires the enthusiasm of college students to participate in physical exercise, enhancing the enthusiasm of college students to participate in physical exercise, gradually increases the comprehensive effect of college students' physical exercise activities, provides correct guidance for the physical and mental health of college students and gradually cultivates sports habits. In summary, the higher the acceptance and satisfaction of college students with sports APP technology, the greater the benefits of exercise in physical education classes.

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