The Study of Usage Intention of Web-based Music Player based on Technology Acceptance Model

Ying Yang[1], Jingjing Zhang*
Yangying861@outlook.com, Zhangjingjing1982@126.com

[1]Computer Science, Newcastle University, Newcastle upon Tyne, UK

*College of Computer and Information Engineering, Tianjin Agricultural University, Tianjin, China

Abstract—Music occupies an important part in people's life, which can adjust people's monotonous life and relax people's nerves. Nowadays, people can listen to music through various websites, and there are many kinds of music website for people to choose. Each music website also has its own characteristics and the common feature of these websites is to realize the functions of music, such as browsing, listening, favorite music, as well as registration and membership. This research analyzes the factors of influencing usage intention of web-based music players with correlation analysis based on the technology acceptance model. The results show that perceived usefulness and attitude play greater influences on the intention. This study aims to provide certain opinions and suggestions to the developers of web-based music players.

Keywords-music player; factor, technology acceptance model

1 INTRODUCTION

With the rapid development of the science technology and Internet diversity, a variety of network products, such as learning, games, life and media, have been produced continuously. Web-based music players also emerges under such demand. The diversification of music forms, music websites are getting more and more popular. The emergence of various music websites brings different physical and mental feelings to people [1]. People can entertain and relax themselves with music. People listen online, download and upload music, and also interact with others through various music players. Nowadays, music has formed a good atmosphere and plays an important part of life [2].

The analysis shows that most web-based music players have their own different features besides basic functions like login, register, search, etc [3]. However, some web-based music players are not comprehensive enough. For example, some web-based music players provide the function of comments but no music uploading, and some allow people to upload or download but no social function. Sometimes people need to change different web-based music players to meet their requirements. Therefore, what kinds of web-based music players users prefer is a question worthy to study.

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2 METHODOLOGY

In this research, Technology Application Model [4] (TAM) is used to study the usage intention of web-based music players. TAM was originally developed by Davis, mainly containing two aspects: perceived usefulness and perceived ease of use. Perceived usefulness refers to the users' perception of the degree to which using a system will enhance their performance, and perceived ease of use refers to the degree to which users think the system is difficult or easy. TAM shows that perceived usefulness and perceived ease of use affect actual usage through attitude and intention. Both users' perception of usefulness and ease of use affect attitude. Attitude has a direct effect on intention, which causes the actual usage behavior directly. Perceived usefulness also has impact on intention directly. Perceived ease of use may have a direct effect on perceived usefulness, which means that if a system is easy to master, the degree of the perceived usefulness will be improved. Besides, external factors affect attitude and intention through perceived usefulness and ease of use. Technology Application Model (TAM) is shown as Fig. 1.

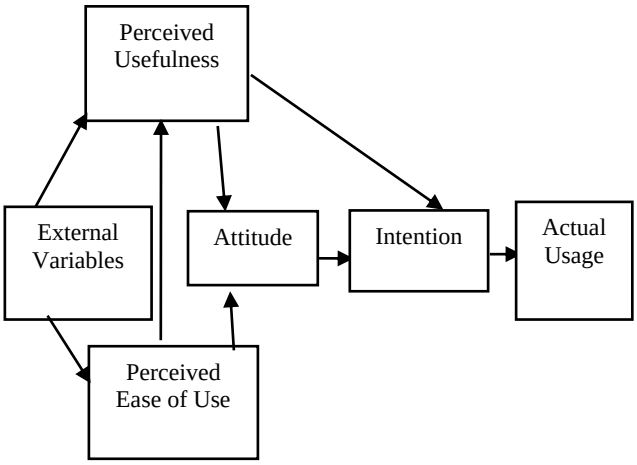

Figure 1. Technology Application Model (TAM)

3 ANALYSIS

In this study, the model of web-based music player usage intention is analyzed based on TAM. Moreover, the music player acceptance model expands the composition of factors of perceived usefulness, perceived ease of use and attitude. Several hypotheses are put forward. The intention model of this study is shown as Fig. 2.

3.1 Factors of the original model

According to the TAM model, perceived usefulness and perceived ease of use are two important determinants. In this study, it is proposed that the both perceived usefulness and perceived ease of use of web-based music player affect the attitude directly. Furthermore, it is supposed that perceived ease of use of web-based music player may have an impact on

perceived usefulness. Similarly, it is assumed that perceived usefulness of web-based music player affect the usage intention directly without the medium of attitude. The hypotheses are proposed as below:

1) Users' perceived usefulness influences the attitude towards using web-based music players positively.

2) Users' perceived ease of use influences the attitude towards using web-based music players positively.

3) Users' perceived ease of use influences the perceived usefulness of web-based music players positively.

4) Users' perceived usefulness affects the usage intention of web-based music players positively.

5) Users' attitude affects the usage intention of web-based music players positively.

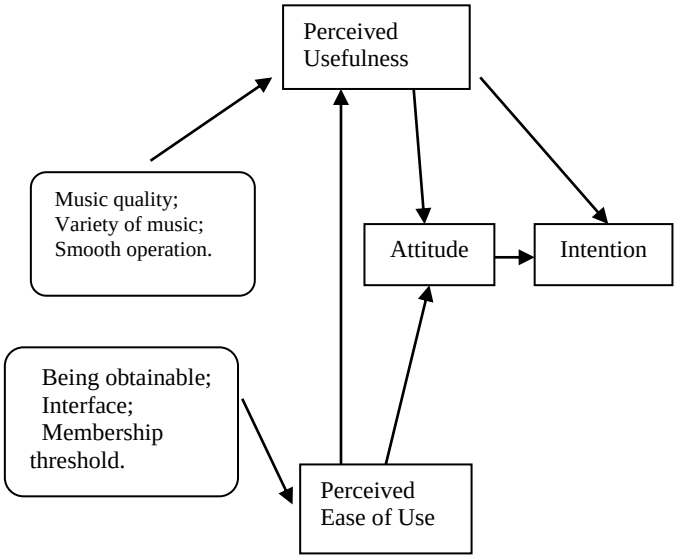

Figure 2. The model of usage intention of web-based music player

3.2 Factors of perceived usefulness

Through investigation, it is found that good music quality, wide variety of music and smooth working are the main aspects of perceived usefulness. The hypotheses are proposed as below:

1) Good music quality affects the perceived usefulness of web-based music players positively.

2) Wide variety of music affects the perceived usefulness of web-based music players positively.

3) Smooth operation of the music players affects the perceived usefulness of web-based music players positively.

3.3 Factors of perceived ease of use

The results of the questionnaire survey indicate that obtaining easily, simple interface and low membership threshold are the main three important aspects of the ease of use of the player. The hypotheses are proposed as below:

1) Web-based music players' being obtainable easily affects the perceived ease of use of web-based music players positively.

2) Friendly interface layout affects the perceived ease of use of web-based music players positively.

3) Lower membership threshold affects the perceived ease of use of web-based music players positively.

3.4 Factors of attitude

The three-component attitude model is used to measure the attitude of usage intention of web-based music player, which mainly includes cognitive, emotional and behavioral components [5]. In this study, cognitive component, which is the basis of attitudes, refers to the evaluation of web-based music player. Emotional component refers to the emotions of web-based music players based on cognitive factors such as the like, dislike, appreciation. The behavioral component means that it is easier for users to form attitudes based on the past usage experience under normal circumstances. Therefore, factors of the attitude of web-based music player are mainly composed of the above three aspects in the study, as shown in Figure 3.

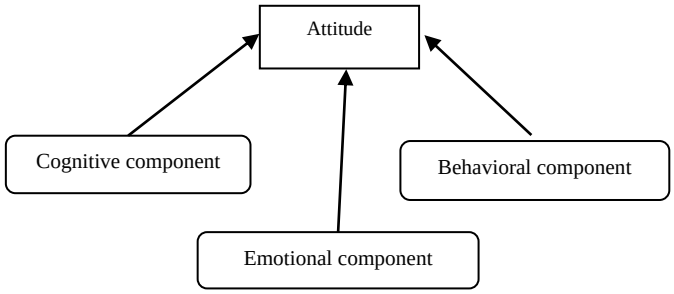

Figure 3. Factors of attitude of web-based music player

4 SURVEYS AND ANALYSIS

A small investigation is designed and interviews are carried out in order to derive the main factors affecting perceived usefulness and perceived ease of use based on technology acceptance model in this research. The survey samples are mainly college students, which consist of 69 male students and 89 female students. A total of 158 valid questionnaires are collected in this survey. The items in the questionnaire are measured on a 5-point Likert-type scale (1=strongly disagree to 5=strongly agree).

1) Whether the sound quality of the music is good is important.

2) The variety of music in the player should be wide and complete.

3) The web-based music player should operate smoothly and stably.

4) The web-based music player should be available anytime.

5) The interface layout of the web-based music player should be reasonable and clear.

6) Membership threshold is not high and there is more free music.

7) I will choose familiar music players.

8) I will search the relevant information of the music player in advance.

9) The preference is relatively important for me to choose a music player.

10) I use web-based music players frequently.

4.1 Research results of the original factors

This article uses correlation analysis to study the relationship between various factors. Generally, the technology acceptance model has certain applicability to this research, as shown in Table 1. Perceived usefulness directly affects the attitude of web-based music player with a coefficient of.585. The coefficient of the impact of perceived usefulness on usage intention is .632. The coefficient of the influence of perceived ease of use on perceived usefulness is .365, which is not as expected. The influence coefficient of perceived ease of web-based music player on attitude is .427. Besides, attitude influences the usage intention of web-based music player significantly, with a coefficient of .713.

TABLE 1. COEFFICIENTS OF ORIGINAL FACTORS

	Perceived usefulness	Attitude	Intention
Perceived usefulness		.585*	.632**
Perceived ease of use	.365	.427	
Attitude			.713**

4.2 Research results of external factors

The result shows that music sound quality is the most concerned factor for users among the three factors of perceived usefulness, the coefficient of which is .682.The second one is whether the player runs smoothly. The membership threshold is the most concerned factor for users among the factors of perceive ease of use with the coefficient of .528. Besides, the behavioral component shows the greatest impact on the attitude. The results are shown as Table 2.

TABLE 2. EXTERNAL FACTORS WITH IMPORTANT INFLUENCE

Original model factors	External factors
Perceived usefulness	Music sound quality
	Smooth operation
Perceive ease of use	Membership threshold
Attitude	Behavioral component

4.3 Research results of individual variables

Generally, individual factors such as age and gender also affect the usage and acceptance of music players. This part is mainly to study the influence and association of individual variables on web-based music player applications. Since the sample of this study are college students, the result doesn't show the obvious influence of academic qualifications and age on usage intention of web-based music players. However, the result has indicated the difference between male users and female users, which is that the interface layout and colors of web-based music players may be more attractive to female users.

5 CONCLUSION

This paper studies the usage intention of web-based music player based on Technology Application Model. Some conclusions have been brought, which are shown as Fig. 4. The solid arrow indicates that the impact is large and the dashed arrow indicates that the impact is not as large as expected. Perceived usefulness of web-based music player has obvious effects on both attitude and intention directly or indirectly, and the quality of music plays a particularly important role. The effect of perceived ease of use is not as obvious as perceived usefulness in the usage intention model of web-based music player, of which the membership threshold and the cost of music are important factors that affect users' willingness. The results also indicate that a well experience of the web-based music player will increase the usage intention next time. This study suggests that web-based music player developers should pay more attention to the quality of music, free music and good experiences in order to gain the trust of users.

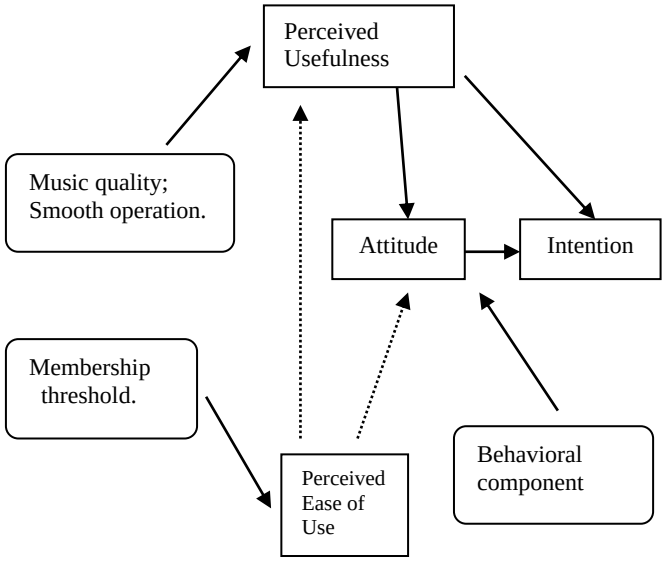

Figure 4. Conclusions of usage intention of web-based music player

The conclusions of this study are basically consistent with the technology acceptance model. The main difference is that the perceived ease of use of music players has a relatively small direct impact on perceived usefulness and attitude. Since the subjects of this survey are mainly college students, it is easier for them to use similar tools, so whether the music player is easy to use is not an important factor for them.

Because the sample type is relatively single, the role of individual factors is not clearly reflected in this study, which just shows that the developers of music players should consider the types of users seriously. Different groups of people have big differences in the needs of music players.

At present, there are many methods and models of research on technology adoption. On the basis of referring to related research, this article chooses the technology acceptance model as the main research method. The results of this research show that the technology acceptance model can be used as an important method of usage intention of music players.

Due to some reasons, this article mainly conducts investigation and research on college students in the research. The sample coverage is not so comprehensive that the research conclusions are not completely accurate. In the future, the number and type of samples and the kind of music players should be considered. Moreover, future research will be carried out focusing on more specific model factors, the deep influence of personality factors on usage intention and intentions of diversified use.

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