

# Research on the Key Influencing Factors of Use Intention on Coloring Ring Back Tone

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**Abstract**—Through reviewing previous research papers based on Theory of Reasoned Action and Technology Acceptance Model, combined with the characteristics of mobile value-added Coloring Ring Back Tone business, this study discussed the factors influencing consuming intention of Coloring Ring Back Tone, developed a theoretical model of Coloring Ring Back Tone consumption intention and put forward research hypotheses and scale. Based on questionnaire survey, reliability and validity test were performed using SPSS13.0, hypotheses test were conducted by LISREL8.7. The results show that variables of perceived usefulness, perceived ease of use, perception entertainment and perceived personality have impact on attitude, subjective norm and perceived price are the important influencing factors of consuming intention as well.

**Keywords**- Coloring Ring Back Tone; perceived price; subjective norm; use attitude; use intention

## I. INTRODUCTION

With the development of technology and economic, China mobile communications market scale unceasingly expands, the scale of user up to 975 million by 2011, gradually mobile communications have become an indispensable part of daily life. Although the mobile user scale continuous increasing, due to the declining ARPU, the overall operating income growth of mobile communication industry become weakness. In the traditional voice traffic tends to the total amount of saturated, mobile value-added business with rich content and personalized characteristic, become new economic flash points of mobile communications industry, the income proportion increasing year by year, mobile value-added business income amounted to 194.7 billion in 2010, accounting for 31% of total revenue of mobile communication. In a wide variety of value-added services, Coloring Ring Back Tone business is the most obvious value-added services in boosting ARPU value in addition to the text message service, by December 2010, mobile value-added Coloring Ring Back Tone business users up to 574.08 million, the permeability reached 66.8%.

With the increasing downward pressure of Chinese economy, the competition of mobile communications market increased, to meet the diverse needs of users and formulate the marketing strategy, we must clear the driving mechanism of consumers using Coloring Ring Back Tone business. Therefore, this article will study the influence factors of consumers using Coloring Ring Back Tone and the influence path and influence

degree to use intention, to promote the innovation of the mobile value-added Coloring Ring Back Tone business and spread.

## II. LITERATURE REVIEW AND RESEARCH HYPOTHESES

### A. Literature Review

Fishbein and Ajzen (1975) with social psychology based put forward the Theory of Reasoned Action, it is often used to explain and predict individual decision-making behavior pattern and the theoretical basis of most technology acceptance behavioral research. Rational behavior theory indicate that the behavior intention is the best indicators to forecast behavior, reflect the will of personal engaged in a behavior and conscious plan; Behavioral Intention will influence by subjective attitude and Behavioral Attitude. The premise of rational behavior theory is "personal intend to predict behavior", it ignores the influence of resources, opportunity, knowledge and the condition, so when the environment or resource constraints, the individual cannot produce behavior intention and action, rational behavior theory cannot make a reasonable explanation for behavior.

Technology Acceptance Model is put forward by Davis (1989) when he used rational behavior theory to research consumer information system adopt, its purpose is to explaining the decisive factor of computer adoption [1]. Technology acceptance model used primarily to explore new information system for personal use, through the analysis of the relationship of perceived usefulness, perceived ease of use, use attitude and use intention, to explain or predict all kinds of factors of a person to accept the information system.

### B. Research Hypotheses

Research with the rational behavior theory and technology acceptance model as the foundation, introduced factors such as perception entertaining, perception personality, perception price, combined with the characteristics of mobile value-added Coloring Ring Back Tone business, developed a theoretical model of Coloring Ring Back Tone consumption intention, as shown in figure 1.

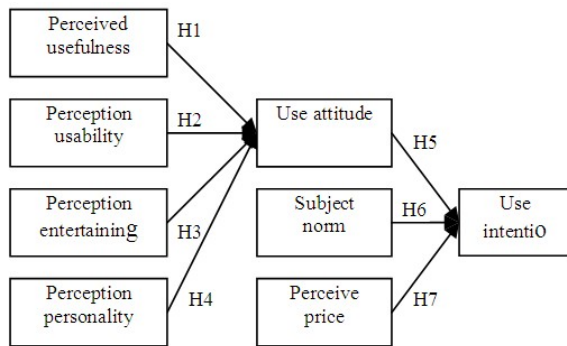


Figure 1. Theoretical model of Coloring Ring Back Tone consumption intention

- Perception usefulness is the important variables of technology acceptance model, it reflects the improve level of their work performance that since people using a specific information system for his work. Specific to Coloring Ring Back Tone business, it means the beneficial aspects offered by using Coloring Ring Back Tone business. Pedersen (2005) thought perception usefulness has positive influence on use attitude of consumer when research the acceptance and use intention of mobile commerce [2]. Coloring Ring Back Tone is called for by the user and it is a value-added business that can fully display the personality. The perception usefulness has a direct impact on the use attitude of consumers. Therefore, research put forward the assumptions. H1: Perception usefulness has positive influence on use attitude.
- Perception usability reflects the extent of the effort when person want to learn to use a specific information system. Although the scale of Coloring Ring Back Tone business users had been 574.08 million, most of the user's active degree is not high, the change cycle of Coloring Ring Back Tone is long. In the process of interview with consumers, they said the complexity of replacing bells is an important factor that influence the change cycle. Wu and Wang (2005) [3], Hsu (2006) [4] consider that perception usability will affect use tendentiousness of consumers. The simple technology is the more easily grasp, simple operation of Coloring Ring Back Tone business will influence the use attitude of consumer. Based on this, study put forward the assumptions. H2: Perception usability has positive influence on use attitude.
- Technology acceptance model obtain the unceasing development since it is put forward, with the changes in the external environment, the application field of technology acceptance model from the initial information system develop to mobile communications system, the enterprise resource planning system, knowledge management system, electronic commerce system and other fields nowadays, and its explanatory power in these areas to be fully verified. In the process, scholars according to their need to expand and improve technology acceptance model for enhancing the explanatory of the model. With the development of

society, when people tend to adopt a new technology, in considering the practicality of this technology they begin to pay close attention to the entertaining. The diversity of Coloring Ring Back Tone service gives it a very strong entertaining, through downloading personalized bell to show their personality, this is one of the most important factors to prompt consumers to use Coloring Ring Back Tone. Based on this, study put forward the assumptions. H3: Perception entertaining has positive influence on use attitude.

- With the development of social economy, the amount of commodity become various, consumers are no longer satisfied with the homogenous products, they show their extraordinary by download and ordering personalized ring, the style of Coloring Ring Back Tone business can show tastes and individual character of consumers and promote the image and status in the crowd. Tang Weidong (2010) thought perception personality has Positive influence on the attitude of using wireless music when he study Consumption behavior of wireless music users [5]. Therefore, study put forward the assumptions. H4: Perception personality has positive influence on use attitude.
- Use attitude is to point to positive or negative feelings of individual users when they in the use of Coloring Ring Back Tone business. Many researches based on rational behavior theory and technology acceptance model considered that attitude is the direct factors to decide to use intention of consumers, they are high correlation, these view has been support by the empirical results. Pavlou (2006) in the review on the basis of previous studies point out that a lot of studies based on rational behavior theory confirmed attitude can explain the purchasing intention effectively [6]. Based on this, study put forward the assumptions. H5: Use attitude has positive influence on use intention.
- The behavior of the individual will be influenced by the environment round, many researches that based on rational behavior theory and theory of planned behavior show that subjective norm has positive influence on behavior intention. In the process of interviews with users, most respondents said positive attitudes of relatives and friends will prompt them to produce the intention of experiencing this business. Yu, et al. (2005) in his study of TV shopping use intention found that, influences come from family and friends will have significant influence on the behavior intention of consumer [7]. Therefore, study put forward the assumptions. H6: Subjective norm has positive influence on use intention.
- Foreign scholars in the studies of influence factors of consumer mobile value-added business use intention, perception price was introduced into research models scarcely, it may relevant to development level of foreign social and economic. But in the process of interviews with consumers, we found that the more reasonable the price of Coloring Ring Back Tone business is the more strong the intention of consumers

using Coloring Ring Back Tone business is. Because most of the Chinese consumers are the price guidance, they are too sensitive to price level. Therefore, the study will introduce perceived price into the model to enhance the explanatory of the model. Based on this, research put forward the assumptions. H7: Perceived price has positive influence on use intention.

### III. RESEARCH DESIGN

#### A. Scale Design

The variables selected by the research have been involved in many studies based on TAM and rational behavior theory, therefore, in reference to achievements of previous researches, combined with Chinese consumer consumption characteristics and characteristics of Coloring Ring Back Tone business, forming the preliminary measurement-item. Research with reference to the form of Likert5 level scale, will divide the rating of each-item into 5 levels, respondents to be required choose corresponding level according to actual use. To ensure that the feasibility, objectivity and accuracy of questionnaire, research conduct a small-scale survey before the large-scale investigation, in the light of the problems appeared in the course research modified the questionnaire, and finally form a formal investigation questionnaire.

TABLE I. MEASUREMENT SCALE

	Definition and source	
	definition	source
Perceived usefulness (PU)	The improve level of their work performance that the individual thinks to use a specific system.	Davis(1989) [1]
Perception usability (PEOU)	Easy degree of the individual thinks to use a particular system.	Davis(1989) [1]
Perception entertaining (PE)	Products or services which can bring creative or fun to people.	Wu and Wang (2005) [3]
Perception personality (PP)	According to the characteristics of individual users providing individuation and diversity business.	Pedersen(2005) [2]
Use attitude (AT)	Positive or negative feelings of individual users when they in the use of Coloring Ring Back Tone business.	Pedersen(2003) [8]
Subject norm (SN)	Consumer society relationship factors.	Pedersen(2005) [2]
Perceive price (PC)	Perceive price including the actual price of products and Consumer perception of actual delivery.	Se-Joon Hong(2006) [9]
Use intention (UI)	The intention degree of consumer using Coloring Ring Back Tone business.	HSU (2006) [4]

#### B. Data collection

Research had investigated and survey in the market, the walking street, the investigation object is the population who had the experience of using Coloring Ring Back Tone business. The questionnaires were sent 1146 copies, the effective questionnaires for recycling are 875 and the recovery rate of the questionnaire is 76.3%.

### IV. DATA ANALYSIS AND HYPOTHESIS TESTING

#### A. Reliability test

For inspecting the internal consistency of scale, study used Cronbach's alpha variable coefficient to test reliability. Used SPSS13.0 to inspect reliability of each individual table, the results show that the reliability of individual table is correspond with the standard  $\alpha > 0.7$ , indicated the questionnaire has high internal consistency [10].

TABLE II. RELIABILITY ANALYSIS

	Individual table							
	PU	PEOU	PE	PP	PC	SN	AT	UI
Cronbach's alpha	.834	.830	.841	.912	.750	.780	.750	.869

#### B. Validity Analysis

Research used the method of factor analysis to inspect structural validity of scale. First test KMO value of the sample data, the KMO value more close to 1 the sample data more suitable for the factor analysis, if KMO value is less than 0.5 the sample data do not fit the factor analysis. Overall samples KMO value of this study is 0.953, P value is 0.000, the results show that the sample data suit for factor analysis. Used SPSS13.0 to do exploratory factor analysis, extracted eight factors which features value greater than 1, corresponded with the eight variables of model, the load factor of each-item were greater than 0.5 and no cross load phenomenon, which means that the scale has good convergent validity and discriminatory validity.

#### C. Model Test

Research used LISREL8.7 to analyze the sample data to verify the rationality of the model. The analysis results as shown in table III.

According to the data in table III, study found that in addition to GFI index has a gap of 0.02 compared with standard value, the rest of the index fully comply with standard. Comprehensive analysis each index of the research model, goodness of fit between the model and the data is well. It can be used to test hypotheses.

TABLE III. MODEL GOODNESS-OF-FIT ANALYSIS

	Fitting index						
	$\chi^2/df$	GFI	AGFI	NFI	CFI	RMSEA	RMR
Standard Value	<5	>0.9	>0.8	>0.9	>0.9	<0.08	<0.05
Research model	4.72	0.88	0.85	0.98	0.98	0.069	0.046

Study used structural equation to inspect the theoretical model, inspection results as shown in figure 2, each standard path coefficient and T value of research hypotheses, as shown in table IV.

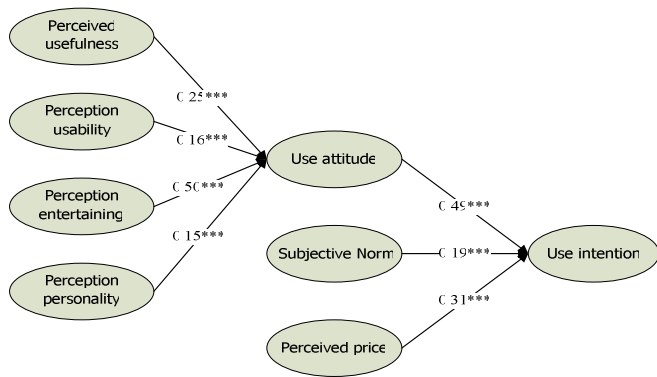


Figure 2. results of model hypothesis test

TABLE IV. HYPOTHESIS TEST RESULTS

	Path and results			
	Path	Path coefficient	T-value	Inspection results
H1	PU→AT	0.25	4.07	support
H2	PEOU→AT	0.16	3.25	support
H3	PE→AT	0.50	5.82	support
H4	PP→AT	0.15	3.25	support
H5	AT→UI	0.49	7.85	support
H6	SN→UI	0.19	2.52	support
H7	PC→UI	0.31	6.09	support

As is shown in table IV, the T-value of all the research hypotheses are greater than 2, hypotheses were verified. The results show that variables of perceived usefulness, perceived usability, perceived entertaining and perceived personality have impact on attitude, perceived entertaining playing most significant impact on attitude, this could be because most consumers of Coloring Ring Back Tone business are young group and they pay more attention to the appeals of the entertainment. Test results also showed that the social norms and perception prices can also affect consumers' willingness to use, perception price had more significant influence on use attitude, it is because of most of Chinese consumers are price sensitive type, the lower price level Coloring Ring Back Tone business is the stronger use intention is; Subject norm has certain effect on use intention, consumers will be influenced by the social environment and family or friends when they make decision-making, social trends and proposal come from friends are key considerations to make decision-making.

## V. CONCLUSION

Through reviewing previous research papers based on Theory of Reasoned Action and Technology Acceptance Model, combined with the characteristics of mobile value-added Coloring Ring Back Tone business, this study developed a theoretical model of Coloring Ring Back Tone consumption

intention and verified this model. The results showed that the use intention of consumers will influenced by use attitude, perception price and subjective norm, the path coefficient of influence use attitude on use intention is 0.49, playing greater impact degree; The influence come from subjective norm is lesser, the path coefficient is 0.19. This shows that consumers' positive or negative feelings will significantly impact on consumers' use intention, while suggestions of relatives or friends and social trends have a weaker influence. Variable which plays the biggest impact on attitude is perception entertaining, its path coefficient is 0.5, and the second is perceived usefulness. The result shows that consumers tend to pay more attention to experience of entertainment and promotion of communication effect.

Through verification, goodness-of-fit of model developed by this study is good and research hypotheses are proven, but restricted by factors such as ability of scientific research and the objective conditions, there are still many deficiencies in this research. Cultural environment is different because of regional differences. The level of economy and the concept of consumption have a difference too. The applicability of this conclusion should be further validated in other areas. In addition, the selection of variable of the model is limited and it ignores the influence of operators' brand. In the future, research will strengthen the exploration of influencing factors and further expand the research model to enhance its explanatory. Study will also expand sampling range for verifying the application of model in different areas.

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