The Influence of Technology Readiness and Interactivity on Consumers Behavior

Michael Yao-Ping PENG

No. 99 Denglong Road, Mawei District, Fuzhou Economic & Technological Development Zone, Fujian, China

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Abstract. A Multiple Media Kiosk (MMK) not only saves lots of cost for organization, but plays a role in innovating of self-service technology (SST). This research wanted to find factors of improving user intention in MMK by studying MMK in convenience stores in Taiwan, making more innovations in SST will come true in the future. This study used Technology Acceptance Model (TAM) to explain the behavior of using MMK, in the meantime, we premised that user experience to the internet service and the acceptance to the application of the new technology could also affect it in the multichannel and multimedia retailing environment. Final, confirming these relations by SEM was our research method in statistic. After analyzing data from Online-survey by AMOS, the results indicated that perceived usefulness and perceived ease of use (two factors in TAM) were significant influence on the behavior of using MMK, moreover, Technology Readiness also could be antecedent variable to the TAM.

Introduction

Multiple Media Kiosk (MMK) is a self-help service that is common in retail channels. Although its functions may vary according to the culture or channel requirements of countries all over the world, it has a touch screen and a multimedia interface or uses the voice effect to help customers quickly purchase what they need. In addition to helping retail stores create the most profits in the smallest space, this self-help service can satisfy customers' pursuit of a pleasant and novel consumer experience [1], helping retailers create new consumer value added. The largest Japanese chain convenience store, LAWSON, set up MMKs called LOPPY in its stores as early as 1997. Its diversified functions and integration of information of different industries have not only changed the consumption habits of Japanese, but also made it become a benchmark for retailers in neighboring countries. The supermarket Homeplus in South Korea launched virtual stores for subway stations in 2011, which successfully reached a 42% increase in monthly revenues for the shelf commodities by combining with the multimedia advertising billboards and mobile devices. Promoting MMKs in the retail industry is conducive to creating innovative services. To achieve the success, it is required to verify the feasibility in optimal practices, and also necessary to discuss key success factors from the markets with a low popularity of MMKs. Therefore, this study chooses convenience stores that are highly popular in Taiwan as the main research object, and aims to understand the relevant factors to improve the usage rate of MMKs through confirming the theoretical model, which will help to replicate the research contributions and promote the application of related innovative services in countries with similar market structure.

Quite a lot of researches on the consumer behavior using the self-help service have been conducted in the past. In these researches, various external factors (e.g., trust, price, reliability, perceived risk, etc.) have been verified to significantly affect consumer behaviors [2]. Although this type of research is quite mature, most of them focus on services and behaviors. This study holds the opinion that consumer behaviors are not only affected by their own cognition on services, but also subject to their experience in the use of different channels. Therefore, with the support of the literature of multi-channel retail strategy [3], we find out theories representing the cognition or experience of
consumers on the use of other channels, and observe whether these theories have impacts on the behavior of consumers using MMKs. Among them, we mainly use the Technology Acceptance Model (TAM) as the behavior theory to explain the use of MMKs machines by consumers. Moreover, the technology preparation and interactivity are used to denote the willingness of consumers to apply smart devices to self-help service and their experience in using the traditional web service functions, and the two aspects are assumed to play the role of exogenous variables in TAM.

Literatures Review

Technology Acceptance Model

The Technology Acceptance Model (TAM) was proposed by Davis [15] to explain and predict the acceptance of information technology by research subjects, and to influence user’s cognition and belief by studying the interference of different external variables, so that the user acceptance is strengthened and the purpose is achieved. Therefore, this model is also widely used to explore the decisive factors for users to accept a new technology. The development of TAM follows the view of Theory of Reasoned Action (TRA), which believes that attitude is the main factor that affects individual behavioral intentions [16]. In addition, it adds two new aspects: perceptive usefulness and perceived ease of use as the main determinants of attitudes. The perceptive usefulness believes that the individual’s attitude for a behavior is mainly composed by whether such a behavior can help to achieve the behavioral purpose, while the perceived ease of use believes the individual’s attitude for a behavior is mainly composed by the ease of such a behavior [15]. Hence, this study argues that whether consumers are willing to use MMKs is determined by whether they perceive the MMKs can help them complete their own consumption, and the ease of use of this behavior.

Technology Readiness

Technology Readiness (TR) means the tendency of people to accept and use new technologies to achieve their family or work goals [17]. Its difference with TAM is that TR believes that people do not only have a positive feeling facing new technologies, they may also have anxiety or uneasiness. Parasuraman [17] worked together with Rockbridge Associates on a consumer group interview to understand the positive and negative perceptions of technology of the company's customers, and four variables of TR, namely optimism, innovativeness, discomfort and insecurity, were proposed based on the research results. Of these, optimism and innovativeness are enablers of TR, while incompatibility and insecurity are inhibitors. Parasuraman [17] points out TR can be a consideration for the development of Self-Server Technology (SST) to more accurately predict consumer behaviors, so there is no lack of studies on the degree of satisfaction and behavioral intentions for TR and SSTs. All the results also show that TR has a significant impact on SST [18]. Because TR is a measure of users' tendency to use new technologies to achieve their goals, its focus is to measure the user's state of cognition to new technologies, but not to directly explain the users' behavioral models. Hence, Lin, Shih and Sher [19] developed a model combining TR and TAM for the relationship between the two (TRAM, Technology Readiness into Technology Acceptance Model). The results of this framework show that TR has a notable correlation with behavior intention and the perceived usefulness and perceived ease of use are its mediating variables. Furthermore, Chen [20] uses TR to measure the consumer satisfaction and loyalty to 3C products. The results show that TR is a major factor that determines the consumer satisfaction and loyalty to 3C products. On this basis, this study uses TR as a measure of consumers' tendency to use technology products such as smart phones to help them achieve their goals, and explores whether the tendency is associated with the research of TRAM in the multi-channel retail environment, coming to a conclusion that the technology readiness of consumers to the application of smart devices will affect its use of the MMKs in convenience stores.
Interactivity

Interactivity is a quite important concept in marketing [21]. Although it does not have a so-called fairly appropriate scope or definition, many scholars still try to find a suitable aspect for this term. This study uses the three aspects defined by Cry et al. [22] for the influence of perceived interactivity on e-loyalty, namely, user control, connectedness and responsiveness. User control denotes the user's ability to control the contents and display of information; connectedness refers to whether customers share their experience in using products and services with other users; responsiveness means the ability to respond to customer requirements [21].

Many literatures have discussed the impact of interactivity on the use experience of online shopping or social network websites [22, 23], suggesting that web designers can attract and retain customers by increasing the level of interaction on the web [23] while ensuring the web security. Knowing that the interactivity is helpful to the network service design, Shina et al. [24] point out that consumers' perception of interactivity has a prominent moderating effect in the relationship of attitude with perceived usefulness and perceived ease of use. Similar findings have also appeared in the Web Acceptance Model (WAM) proposed by Castañeda et al. [25].

Method

Sampling and Participants

The questionnaires in this research were designed with literature about TAM. Three revisions and two pre-tests were undertaken. The questionnaire modified based on existing literature, contains technology readiness, perceived usefulness, perceived ease of use, attitude toward use, interactivity, and use intention. Nearly, 1000 questionnaires were circulated among MMKs consumers. 395 were returned, for a 39.5% return rate. After removing those samples considered invalid, 373 questionnaires were used in our empirical analysis. Among the valid samples, the percentage of male and female respondents was 47.5 and 52.5, respectively.

Results

In this study, SEM is used to detect the relationship between variables in the model, and there are many items in the consideration of certain facet scales. The results of the study are shown in Figure 1. All the correlations among use intention, attitude toward use, perceived ease of use and perceived usefulness are positively statistical significance, so H1a, H1b, H1c and H1d were supported. In addition, technology readiness→ perceived ease of use and technology readiness→ perceived usefulness showed positive impacts and statistical significance, indicating support to H2a and H2b.

Moderated role of Interactivity

Considering the impact on attitude toward use of perceived ease of use and perceived usefulness, the adoption of interactivity was referring as a moderated variable in the model. The two-way interaction terms of perceived ease of use* interactivity and perceived usefulness* interactivity were added. The constituent variables were mean-centered prior to creating the interaction items to avoid multicollinearity. The results showed that the interaction terms were not positive significant (.01 and .00). H3a and H3b were not supported.
Discussions

According to the Technology Acceptance Model hypothesis proposed by Davis [15], the individual’s attitude on the use of new technology is mainly influenced by the two factors: perceived usefulness and perceived ease of use. By referencing to the previous studies that used TAM to study the use of MMKs on the airport [1], the subject of this study is changed as the self-help service that is quite popular, and MMKs in convenience stores are used as the research object. The same result of the study with Ku and Chen [1] is that perceived usefulness has a significant impact on the use behavior of self-help services. In addition, the statistical data of this study also show that the perceived usefulness has a more significant influence on the using attitude than the perceived ease of use. Finally, as with most behavioral theories, the using attitude of individuals to MMK will remarkably affect their use intention. Elliott et al. [2] have studied the relationship between the use behavior of self-help services with TR. The results show that TR does evidently affect the perceived usefulness and perceived ease of use of individuals when they use self-help services. Following this view, this study narrows the original definition of TR to the specific 3C products such as smartphones or tablets (Chen, 2011), hoping to know if the consumer’s habit of using 3C products also have an effect on the use of MMKs. In the end, the statistical results show that this relationship will still be established, and TR has a greater impact on the perceived ease of use than on the perceived usefulness, implying that consumers may be more conscious of the ease of use of MMKs while they are more accustomed to using 3C products, but they may not agree with the usefulness of MMKs. Interactivity in this study expresses consumers' perception on the use experience of web services [22, 23]. Based on WAM's point of view, the consumers' experience in internet using is assumed to have a mediating effect on the behavior of using network services, but the data show that this effect in this study is not prominent, which is different from the conclusion of Castañeda et al. [25]. This study deduces that although the self-help service like MMK is also an interactive technology taking the Internet as a service basis [13], it is more closed than other online services such as shopping websites, and consumers also have different cognitions, resulting in the difference between the hypothesis verification of mediating effect and the researches of other scholars.
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