WHY DO PEOPLE CONTINUE TO USE GAMIFICATION APPS

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Abstract. There are numerous apps which have been installed on our mobile devices to proffer various services for our special needs. One type of apps, called gamification apps, is defined as an app which is developed for the application of game-design elements and game principles in non-game contexts. Gamification apps provide a strong game-like incentive to encourage users utilizing this kind of app for achieving some purposes specified by themselves or app providers. They require lots of cost to be developed by enterprises; however, users may be influenced by ads or their friends to install and use gamification apps for once and feel boring; they might discontinue to use them immediately or gradually. The result is upset for gamification providers because they are going to lose their costs and benefits. Hence, this study proposes an empirical study to explore that what reasons could make users continue to use gamification apps. If gamification providers can know how to keep users continuing usage, they can prevent to lose costs and benefits. The investigation involving 286 usable subjects to evaluate the model by using structural equation modeling. The result demonstrates that our proposed model explains 64.4% of the variance.

Keywords: Continuance usage; Post-adoption study; Individual level; Gamification app; Exercise

INTRODUCTION

Application which is abbreviated as app has been enormously developed and released on Apple and Google app stores for mobile users to download, install, and use. One type of apps, called gamification apps, is proposed to provide services for helping users to achieve some special purposes. Gamification app is defined as an app which is developed for the application of game-design elements and game principles in non-game contexts (Seaborn and Fels, 2014). This kind of app attempts to engage or support users in some purposes so that game-based apps are able to increase user participation and social interaction with hedonic elements, such as points, badges, level, achievable goals, and feedback (Koivisto & Hamari, 2015a; Koivisto & Hamari, 2015b; Deterding et al., 2011). Nowadays, gamification apps have been implemented in the variety of areas; for exeample, exercise applications (Hamari & Koivisto, 2015), marketing and advertising (Cechanowicz, Gutwin, Brownell, & Goodfellow, 2013; Terlutter & Capella, 2013), and housekeeping. Their goals are all to make users to perceive enjoyment and have motivation to fulfill their purposes.

One of amusing gamification apps, called Nike+, released by Nike company is designed for users to offer exercise functions so that they can employ it to record and track their workout performance and share achievements with their friends. This is the one way that the major goal of gamification app is to furnish useful functions for users. On the other way, Nike incorporation is going to collect user exercise data to analyze and comprehend user behaviors for designing new products to more closely meet customer demand. Another popular gamification app, Pokeman GO, has the same idea to encourage users on the activities of walking and exercising; on the other hand, Niantic incorporation can gather user data for business analysis.

In general, the development of gamification apps requires lots of investment costs to gamification providers (enterprises); however, gamification apps are almost free to download, install, and use them. In the multitudinous gamification apps, users may choose one of them to install because their friends or ads affect them. They are going to use them for a while; unfortunately, this app may not attract them to be continually using. Therefore, users feel boring and give up to adopt immediately or gradually. Apparently, this is not a good news for enterprises who not only pay the enormous dead presidents to develop gamification apps but release them without any paying out. As a result, the provider of gamification apps would be upset or frustrated because this kind of discontinuance behavior leads to their loss in costs and does not get the expected effectiveness in return (benefits).

In the field of the adoption of information systems (IS) and information technology (IT), there is a topic to investigate the continuances intention (usage) of IS/IT (Maier et al., 2015). We are willing to understand the reasons why users can continue to use IS/IT without quitting after they firstly adopt IS/IT. This is of importance because understanding the factors of the initial usage is critical but how to keep users continuing use is more important. If managers or IS/IT developers can comprehend the reasons with respect to continuance usage, they can manipulate them to prevent to lose their investment costs and hold the IS/IT benefits continually.

As the discussion above, we know that gamification apps are also one kind of IS/IT, providing game-based services for users. Therefore, in this study, we propose an empirical investigation to explore that what reasons could make users continue to adopt gamification apps without quitting. A model is established to realize what factors are influenced the continuance use intention of gamification apps. We add three major theoretical cornerstones into this model; they are expectation-confirmation theory (Oliver, 1980; Bhattacherjee, 2001a; 2001b), perceived value (Sweeney and Soutar, 2001; Mathwick et al., 2001; Turel et al., 2010), and habit (Limayem et al, 2007). The three theoretical cornerstones are considered as the elements of the proposed model because they are corresponding to the characteristics of gamification apps. Accordingly, we treat them as the key variables to examine the issue of continuance usage for gamification apps. Since gamification services have designed to different kinds of applications, we only focus on one topic, exercise in this study.

LITERATURE REVIEW

Expectation-confirmation theory (ECT) (Oliver, 1980) is a post-purchase model, a cognitive theory, which investigates consumer satisfaction to explain expectation, perceived performance, and confirmation. ECT refers that consumers firstly have formed the expectation of a product or service before purchasing or using it. After accepting and using the product/service for a while, they begin to perceive its performance. When their expectation and perceived performance are in congruity, they will gain satisfaction and form the intention of repurchasing.

Most studies in marketing discipline have used the ECT as a reference of repurchase intention, which is used by the IS researchers as well. The purpose is to predict user continuance intention of IS users in the post-adoption phase. The behavior of continuance usage represents that users decide to adopt the service or product for a period of time after the prior use. Continuance intention of IS users is similar to consumers' repurchase decision. There are two fundamental determinants in ECT, satisfaction and confirmation, which positively affect the consumer repurchase intention. Some modifications are made in expectation-confirmation model (ECM). Bhatacherjee (2001a) combined the ECT of consumer behavior into ECM to investigate the continuance usage behavior. In the process of examining IS or IT continuance use intention, this study finds that both decisions of the ECT of consumer behavior and IS/IT users' behavior is similar, containing (1) follow an initial decision, (2) are affected by the prior use experience, and (3) can finally cause disconfirmation of the initial decision. ECM refers that continuance usage intention is affected by user satisfaction and perceived usefulness. Perceived usefulness and confirmation of expectations from initial use determine user satisfaction. If there is a discrepancy in perceived usefulness and expectation, negative expectation will cause disconfirmation, which causes discontinuance behavior, and vice versa.

Zeithaml (1988) stated that perceived value is a consumer's overall assessment of the utility of a product (or service) based on the perception of what is received and what is given. She suggested that this assessment stemming from the comparison of a product or service's 'get' and 'give' components, which has a more common such definition of the comparison between quality and price is trade-off. Perceived value has been regarded as a cognitive concept that may influence consumer's behavioral outcomes; for example, customer satisfaction, behavioral usage intention, and brand loyalty (Yang and Peterson, 2004). However, some authors have suggested that examining value as a trade-off between only quality and price is too simplistic (e.g., Schechter, 1984, Bolton & Drew, 1991). According to previous research, more dimensions of perceived value have been brought up to understand how consumers estimate products and services; for instance, utilitarian, affective, and symbolic value are in the situation of assessing consumer's perceived value on products or services (Tsai, 2005); Utilitarian, social, and hedonic value are in the situation of assessing the value of department store shopping (Rintamäki, Kanto, Kuusela, & Spence, 2006). Babin et al. (1994) developed a value scale that assesses the consumers shopping experience based on two dimensions: the utilitarian value and the hedonic value. The former reflects the comparison between functional, physical, economical benefits, and sacrifices (Overby & Lee, 2006). The latter is driven from the desire of entertainment, emotional, and experiential benefits of shopping experience. Moreover, the study of Aarts and Dijksterhuis (2000) has suggested that the concept of habit is formed by the goal-directed automatic behavior, which means that the more value a consumer perceives, the more habit will be boosted. Therefore, perceived value could be considered as a predictor of user's behavior.

METHODOLOGY

The research model of this study is referred to two famous models, expectation-confirmation model and perceived value model, and the variable of habit. Figure 1 illustrates the research model. On the basis of the results of the past studies, we present a research model and propose the following hypotheses.

A survey was carried out to collect the investigated data. Existing validated scales were adopted from the well-established and reliable research instruments. The instruments were designed with a two-section questionnaire. The first section is a nominal scale and the second is a seven-point Likert scale.

The method of the data analysis is to verify the structural relationships among the latent constructs. The purpose of the approach is to build the reliability and validity of the measures before evaluating the structural relationship of the research model. We analyze the data with the partial least squares (PLS) method. PLS is a structural equation model (SEM) technique that utilize a nonparametric and component-based approach for evaluating the psychometric properties of measurement scales and for testing path coefficients. It was appropriate to adopt Smart PLS 2.0 M3 for this study, because it allows latent variables to be modeled as either formative or reflective constructs. Moreover, PLS allows us to test simultaneously the measurement model and the structural model, and it has minimal restrictions on measurement scales, such as sample size, linearity, and residual distribution (Chin et al., 2003; Hair et al., 2012).
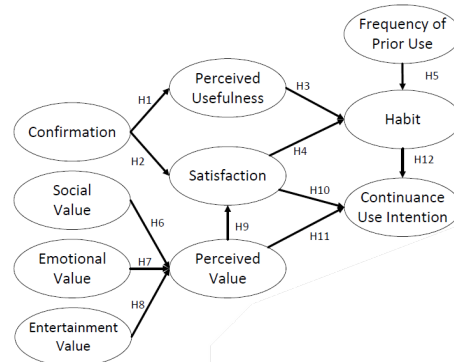

Figure 1. The reserach model.

FINDINGS AND ARGUMENT

We proceed to analyze the structural model to assess the path coefficients (β), denoting the significance and strength of the cause relationships of each of our hypothesized effects and the R^2 value, representing the amount of variance explained by the independent variables and the predictive power of the model. There are two steps in assessing the structural model. First, PLS does not offer a significance test or confidence interval estimation. A bootstrapping procedure was adopted to acquire t-statistics, path coefficients, statistical significance, and relevant parameter, such as means standard errors, item loadings, and item weights (Chin et al., 2003). Therefore, 1500 re-samples were executed to acquire a result for these analyses. Second, the coefficient of determination derived from PLS analysis is similar to that found in multiple regression analysis. The path coefficients (significant paths indicated with an asterisk), and explanatory powers for the structural model are demonstrated in Figure 2, revealing that all paths show a p-value of less than 0.05. PLS model does not generate the model fit statistics, but uses the R^2 values (explained variance) in the dependent constructs to evaluate the explanatory power of a structural model. In conclusion, the model accounts for 64.4% of the variance of continuance use intention.
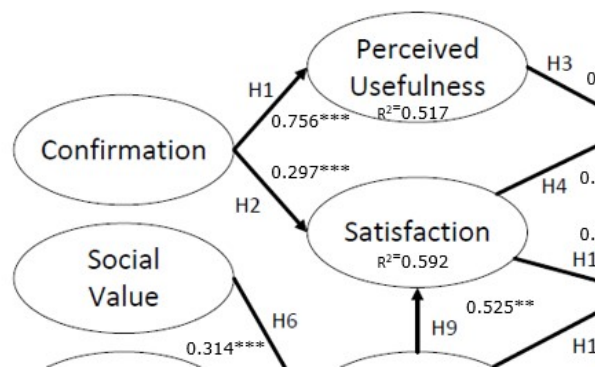

Figure 2. The reserach model.

CONCLUSIONS

The purpose of this study is to explore user's continuance usage intention of gamification apps. The followings are the conclusions. First, according to the results of this study, habit, satisfaction, and perceived value are the most significant determinants affecting user's continuance intention. Second, perceived value and confirmation are positively impact on satisfaction. Third, satisfaction, frequency of prior use, and perceived usefulness are vitally affect habit. Fourth, confirmation positively influences the degree of perceived usefulness. Lastly, in the comparison of three important values from perceived value, emotional value is the strongest one, the second is social value, and the last is entertainment value.

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