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What drives in-app purchase intention for mobile games? An examination of perceived values and loyalty

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ABSTRACT

Despite the huge growth potential that has been predicted for in-app purchases and the mobile game market, little is known about what motivates game players to make such purchases. The purpose of this paper is to build a research model based on the loyalty literature and studies of value theory to identify the antecedents of in-app purchase intention in the context of mobile games. The proposed model was empirically evaluated using a web survey of 3309 mobile game players: 813 nonpaying players and 2496 paying players. Structural equation modeling was used to assess the research model. The results reveal that loyalty to the mobile game has significant influence on a player's intention to make an in-app purchase. The perceived values of the game (playfulness, connectedness, access flexibility, and reward) have direct influence on the loyalty of all players but appear to have relatively little impact on the purchase intentions of nonpaying players. Two values (loyalty and good price) were found to have a direct impact on a player's intention to make an in-app purchase. Specifically, our study revealed differences between paying users and nonpaying users. This study provides a better understanding of how the values influence loyalty among all players of the game, and the purchase intentions of paying and nonpaying players. Further insights into mobile game app marketing strategies are provided as well.

1. Introduction

The development of mobile Internet and mobile technology has significantly changed our behaviors and our daily lives. Mobile devices such as smartphones, tablets, and e-book readers are available anytime and anywhere for use in various activities and tasks. In particular, mobile phones have been recognized as a new, unique mass media channel. According to Gartner, Inc., sales of mobile devices were expected to reach 2.5 billion units in 2015, and to continue to do well thereafter (Gartner 2015). Market research company eMarketer (2014) predicted that mobile phone penetration will rise from 61.1% to 69.4% of the global population between 2013 and 2017. As they become more affordable, mobile devices are being used by more and more people. Advances in 3G and 4G networks are also driving demand for mobile applications and value-added services. Mobile apps are small software programs designed to run on mobile devices to perform various functions, including email, calendar, web browsing, social networking, and online gaming. It is estimated that the app economy will create revenues of more than €10 billion per year within the European Union (VisionMobile 2014).

The mobile game market is the fastest growing app market in the world and total mobile game revenue is predicted to double by 2017 (Newzoo 2013). Compared to personal computers and game consoles, a mobile device may not be the ideal gaming platform because of its small size and limited visual effects. Nevertheless, convenience, portability, and cost have made mobile games a popular leisure activity choice (Bose and Yang 2011). Most mobile games are free and generate some of their revenue from in-app advertising. However, a survey by Swrve.com revealed that only 1.35% of mobile game players spent real money for mobile games in July of 2014 (Swrve.com 2014). The top spenders, on the other hand, contributed 62% of the total revenue. For mobile game service providers, these findings stress the importance of knowing how to attract more players to spend real money on mobile games.

In order to increase usage and induce users to pay, more and more mobile game companies provide "freemium" services, which cost the player nothing for basic usage but require payment in real money for advanced functionality or virtual goods (Liu et al. 2015; Staykova and Damsgaard 2015). For example, Skype provides Skype credits inside the app so that its users can send low cost text messages or use Skype WiFi. According to a survey by Distimo.com, a business intelligence and analysis company, in-app purchase revenue grew more than 50% from 2013 to 2014 (Schoger 2014).

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In-app purchases reportedly accounted for 79% of App Store revenue in January, 2014. Hence, freemium/in-app purchase is becoming a popular monetization strategy to increase revenue from mobile games and applications.

The antecedents for playing mobile games have recently been studied from a variety of perspectives, including personality traits, user motivation, and network externalities (Phillips et al. 2006; Wei and Lu 2014). For example, Wei and Lu (2014) found that both network externalities and individual gratification significantly impact the intention to play social games on mobile devices. Phillips et al. (2006) demonstrated that particular personality traits such as agreeableness and neuroticism may influence the level of interest a person may show in new mobile phone features, or the amount of time per week a person spends playing games. However, few of these studies have specifically investigated the reasons why the players were willing to pay for mobile game services. Consequently, one of our research purposes is to explore the antecedents of the intention to pay for the freemium services.

Although the technology acceptance model and the expectation confirmation model are widely used to explain technology usage/adoption behaviors, the factors of perceived usefulness or performance in these models may not comprehensively reflect the motivation of users' in-app payment behavior (Hsu and Lin 2015). In payment behavior studies, perceived value and loyalty are recognized as the main determinants of payment intention (Choi and Kim 2004; Rauyruen and Miller 2009; Lu and Hsiao 2010; Hsu and Lin 2015). The perceived value of the service and loyalty to the service lead to purchase behaviors. For instance, Rauyruen and Miller (2009) demonstrated that loyalty to business-to-business services leads to future transactions. Hsiao (2013) demonstrated that the perceived value of having the Internet on a mobile device influences smartphone users' intention to pay for mobile services. Lu and Hsiao (2010) found that overall satisfaction with social networking services might not affect users' willingness to pay, but perceived value does. Therefore, our other research purpose is to integrate these two major determinants into the research model to explore the factors affecting users' intentions to pay for mobile game services.

Additionally, the current study will examine differences in these factors between paying and nonpaying mobile game players. Past studies have found that the determining factors of information system adoption differ between potential users and experienced users (Teo et al. 2009; Hsu et al. 2007). Therefore, factors that influence the purchase intentions of paying and nonpaying players may differ as well (Hsu and Lin 2015). In order to determine factors which may influence in-app purchase intention, this study applied structural equation modeling (SEM) to assess the strength of the relationships in the proposed model. SEM approach was adopted because it is a robust and powerful multivariate technique for analyzing causal models.

2. Theoretical background

2.1. Mobile games

A mobile game is a video game played on a mobile device such as a smartphone or tablet computer. Games played on dedicated handheld video game systems such as the PlayStation Vita or Nintendo 3DS are not considered mobile games. The development of smartphones and the availability of mobile Internet are changing the circumstances of mobile gaming. Touch screens, higher-quality graphics displays, and ubiquitous connections to networks provide users a better play experience. Today, players of mobile games can download a greater variety of games from online application stores (Feijoo et al. 2012). Mobile games allow playing for short periods of time and are much more accessible and convenient than are games on other platforms. In addition, more and more mobile games are developing new features which facilitate interactions between players. The mobile social game is a type of mobile game that is played through online social networks. These games allow individuals to play games with one another or with many players in their social networks. Social interactions during gameplay help drive game adoption and player retention (Fields and Cotton 2012).

Mobile games usually employ the following features: asynchronous gameplay, community, and virtual currency (Radoff 2011). Asynchronous gameplay allows users to play games without needing other players to play simultaneously. Game communities attract players to discuss and share their game experiences, achievements, or photos with other friends. With the in-game currency, players can purchase upgrades, achievements, and special virtual goods for themselves or for friends. Virtual currency must usually be purchased with real-world money, and is an important source of revenue for the company.

2.2. Perceived value

Recent studies of purchasing behavior have paid increasing attention to the importance of perceived value (Sweeney and Soutar 2001; Turel et al. 2007). Perceived value is defined as the consumer's overall assessment of the utility of a product or service, determined by a consumer's perception of what is received and given. This value can be increased either by enhancing the benefits provided or reducing the expense of purchasing and using it (Lovelock and Wirtz 2011). The ratio of quality to price is a common way of assessing value, which increases as quality increases or price decreases. However, the evaluation of total value is not based on price and quality alone. Past studies have suggested several types of value: functional, social, emotional, epistemic, and conditional. Any or all of these may influence a consumer's decision to purchase. Sweeney and Soutar (2001) proposed a modified model, PERVAL, that assumed functional value could be decomposed into quality and price value, and that the epistemic and conditional elements of perceived value were less critical, while specific cases of other types of value could be excluded. Their general value measure included four dimensions of perceived value: emotional, social, price, and performance/quality.

These perceived values will have different effects on users' payment behaviors in different contexts. Past research has found that all four values have significant influence on the intention to pay for social networking sites, but only emotional value and social value significantly influence the intention to pay for mobile Internet services (Lu and Hsiao 2010; Hsiao 2013). This is because mobile Internet users give greater consideration to emotional value and social value as the service's price gradually decreases and performance remains stable. Hsu and Lin (2015) found that, in the mobile app context, only emotional value and price have direct, significant effects on the intention to pay for a non-free app. Hence, the effects of the values on in-app purchase intention for mobile games may differ, thus meriting further exploration.

3. Research framework and hypotheses

We administered an open-ended questionnaire to identify the key factors affecting mobile game players' payment intention. We asked fifteen heavy users of mobile games to answer questions regarding the factors affecting their intention to play and pay for mobile game services. Statistical analysis of their responses