

## Chapter 9

# An Exploratory Study of the Effectiveness of Mobile Advertising

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### ABSTRACT

*This study examines factors related to the effectiveness of mobile advertising. Using a large data set with 115,899 records of ad tap-through from a mobile advertising company in China, the authors identify that the influencing factors for advertisement tap through are application type, mobile operators, scrolling frequency, and regional income level. They use a logit model to analyze how the probability of advertisement tap through is related to the identified factors. The results show that application type, mobile operators, scrolling frequency, and the regional income level are positively correlated with the likelihood whether users would tap on certain types of advertising. In addition, they use the Bayesian network model to estimate the conditional probability for a user to tap on an advertisement in an application after the user already taps on another advertisement in the same application. Based on the findings, the authors propose strategies for mobile advertisers to engage in effective and targeted mobile advertising.*

### 1. INTRODUCTION

The rapid development of mobile technology makes it possible for mobile advertisers to use various applications to dynamically push advertisements onto smartphones and tablets (Wong, Tan, Tan et al., 2015). The traditional advertising formats of short message service (SMS) and Multimedia Message Service (MMS) (Park et al. 2008; Samanta et al. 2009) are gradually being replaced by mobile interactive

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advertising (Laszlo 2009). More advantageous than the traditional advertising, this new form of mobile advertising possesses properties of real-time, mobility, higher rates of user reachability, and instantaneous interactions. Because of the unique match between a smartphone and its user identification, mobile advertisers can analyze users' behavior and preferences and achieve more accurate advertising content delivery. The mobile advertising service industry, resulting from the popularity of mobile advertising, sets its core business as pushing advertisements to mobile users. They not only organize a large number of mobile application developers to provide application services to mobile customers, but also promote the development and practice of personalized advertising service market.

Since Apple marketed the first generation of smartphones branded as iPhone in 2007, the mobile Internet industry has flourished. The emergence of Android, Windows, and other smartphone operating systems, along with iPhone, has provided strong support to smartphone handset manufacturers. The model of mobile applications (App), third-party developers and application stores quickly becomes the most popular and opportunistic business model in the market. This model calls for sharing smartphone operating system interface (API) or the source codes, allowing non-platform developers and third-party operators to develop Apps, and then uploading them to the App store for global users to download either for free or for a fee. The developers and platform operators share the revenue. Apple and Google are the well-known examples of this business model. Because this model allows any developer to upload Apps, the number of applications on the platform can increase rapidly to meet users' demand for a variety of applications. Apple's iOS platform has become a mature fee-based model, and its rigorous audit ensures the quality of Apps. Because most of the Apps in the Apple store are for fee-based downloads and iOS users have been accustomed to paying, iOS developers can earn a decent income. As a result, this business model has created many miraculous entrepreneurs.

In contrast to iOS, Android platform is an open platform. Because most of Apps are free to download, developers on the Android platform develop and upload Apps for free. Such an open platform leads to uneven application quality and results in the current situation where majority of users do not want to pay for downloading Apps. For example, Viennot, Garcia & Nieh (2014) find that about 80% of apps in Google Play Store are free). In general, developers on the Android platform cannot make money by relying on the basic App downloads, although many commercial apps are paid and an important source of revenue for their developers is the price of the app. To overcome this shortcoming, a new kind of profit model of "free Apps + advertising" has gained market popularity in recent years. Taking advantage of this trend, a number of mobile advertising companies emerged. Successful examples include Millennial Media, StrikeAd, and AirPush in the US, and Cellphone Ads Serving E-Exchange (CASEE), WOBO, and Youmi in China. In 2012, Millennial Media saw its initial public offering (IPO) price rise more than 90% on its first day listed on the NASDAQ, showing the market confidence and expectation for this emerging industry. Among all forms of advertising, the mobile advertising is expected to grow the fastest. It is the new frontier of advertising. Social media companies such as Google and Facebook race to gain shares of this form of advertising. According to the U.S. market research firm eMarketer, the U.S. and China mobile advertising revenues in 2015 reached \$28 and \$13 billion, respectively, and in 2018 are expected to reach \$57 and \$40 billion, respectively (Dogtiev, 2016).

Tsang et al. (2004) summarize the nature of mobile advertising as follows: 1) the rapid growth of mobile Internet has made effective one-to-one marketing possible; 2) the user attitudes toward mobile advertising are generally passive unless the content are specifically customized; and 3) the user attitudes have a direct impact on their behaviors. Xu and Gutierrez (2006) also think that the widespread use of mobile phones has resulted in the rapid growth of mobile commerce (m-commerce), and mobile

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