Predicting Mobile Application Success Based on First Impressions

Paola Mariselli
Harvard SEAS
35 Oxford St.
paolamariselli@fas.harvard.edu

Sierra Okolo
Harvard SEAS
35 Oxford St.
sokolo@fas.harvard.edu

Chi Zeng
Harvard College
Harvard Yard Pl.
czeng@college.harvard.edu

ABSTRACT

The factors that govern the success of a mobile application undergo a highly meritocratic and democratized process. The public volitionally invests in applications with superior designs and better utility factors regardless of the amount of money a company had invested in its design. Or do they? Particularly when considering game applications, why does a given user select to download one application over another when only the very first impressions, icon and title, are considered?

We initiated this project in an attempt to gain clarity on a wide-scale macroeconomic event that occurs everyday: downloading a game mobile application. By examining observable measures on the application page, which offers users with the application's first impressions, we can determine if a correlation exists between icons, titles, and the future success of that application. This research has the potential to save application designers and developers vast resources spent in market research geared towards understanding what incentivizes users to connect to applications. First impressions, we argue, really do matter.

Author Keywords

Mobile Applications; First Impression; Prediction

ACM Classification Keywords

H.5.2. Information Interfaces and Presentation (e.g. HCI): User Interfaces

INTRODUCTION

It has long been the goal of many to be able to know ahead of deployment whether a given product will be successful or not. Forecasting the success of a product ahead of deployment could save designers billions of dollars [6]. But the question still remains: How does one predict the success of an application?

Existing approaches involves deploying applications and potentially failing. To avoid the time-consuming and expensive process of deploying an application that might fail, mobile application developers, for example, take many measures to gauge the success of their applications prior to release. The first may be the release of a beta version of their application to a restricted community before the release of that app to the public. This allows them to estimate future interest. However, conducting a meaningful beta test requires a reliable and closed community of trustworthy individuals. Although many large firms have such resources, independent mobile application developers have to deploy their applications and modify them later [5]. They learn through trial-and-error how to make their application more appealing. Our approach has the potential to improve the aforementioned design process by helping designers get the right design prior to deployment [6].

It has been well-established that first impressions matter. From interviews to website aesthetics, users form an opinion within the first few seconds of viewing a given stimuli. Thus far, first impressions have been used in the context of websites. Since designers know that first impressions matter, independent mobile application developers have tried to obtain feedback on specific features of their application through advertisements and crowdsourcing services. Nevertheless, such services can be costly and the process, being unformalized, does not offer the developer a holistic view of the potential success of their application. It simply offers them an idea of user opinion's regarding a feature in isolation.

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For our approach, we will use Android mobile games to test during our experiment. We choose to use mobile games for our experiment as the data was widely available. As users' first impressions of mobile applications are most often made through the application store, our study will simulate the fea-

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tures found on such pages. We seek to establish this link by conducting a series of online studies. Success will be measured by an app's popularity, represented by the number downloads it obtains. Potential measurements to predict success used will be its icon, slogan, the aesthetic appeal of its screenshots, and description. Our studies will also include a demographics survey in order to better assess the mechanisms underlying the connection. For instance, people may think a given application will be successful because they perceive it as more trustworthy or fun.

We make the following contributions:

- We establish a link between the way users feel about a given application measurement and the application's actual success.
- We deliver a novel approach to predicting the success of mobile applications.

RELATED WORK

Prior research has examined, to a certain extent, first impressions as they relate to the visual appeal of web pages. For instance, different cultures perceive the visual appeal of web pages in different ways [4]. Further, people from different groups see web pages' complexity and color saturations very differently even when they first view such a site [4]. Our research aims to delve deeper into first impressions and how it relates to people perceiving the apparent future success of a mobile application.

Developers already have insights as to the importance of gauging success of their application and how first impressions might be important [7]. For example, application developers consider aspects such as the layout of their icons or how to deliver a consistent messages to users when developing an application. In addition, mobile application success has been discussed in marketing research in relation to the importance of icons, titles, descriptions, screen shots, keywords, and categories [3].

Similarly, web designers know that first impressions matter and users make such assessments within a very short amount of time [2]. Lindgaard further mentions how aesthetics are often neglected in current studies on emotion and design even though emotional responses can be triggered much more quickly than rational ones[2]. Our study will capitalize on this insight as we examine how first impressions significantly impact people's emotional response to an application and underlying reasons for their belief that the application will be a success or not.

APPROACH

In order to tackle this problem we will perform the following: We intend to scrape 500 mobile game applications from the Android market. We are aiming for a total of 5000 participants for our study. For each trial, a subject will be asked to compare two applications on two factors: (1) which application the user think will be more successful and (2) why. The user will be only shown the titles and icons of the apps for five seconds. During the trials, users will be asked to briefly explain their selections. We plan to issue the trials in batches of five, but we will ask users whether they have seen the application before and discard that sample if they say they have. We hope that the client-side randomization of potential applications will reduce the change of users who take the test multiple times from seeing the same application and using their knowledge of the answer to swindle their way into getting higher results. The survey will be powered by Django and a MySQL database.

We will make our trials more appealing by treating each trial as a test of how good users' entrepreneurial guts are. After users answer which application they think is more successful, our system will show them the real answer. We hope that the gamification of this experiment will lead to more users willing to participate in our survey and more experimental data to choose from. Subjects will also see a score denoting what proportion of trials the subjects' guessed correctly. We will do this through an iterative process, informing the user at each step what their score is so that they can have a sense of competition.

Afterwards, we will use an algorithm to rank the applications based on which ones users found to be more successful. We will see how well these rankings correlate with how successful the apps actually are in terms of download counts.

EXPERIMENT

Following this approach, we scraped 500 popular game apps that were recentlyreleased on the Android marketplace. We scraped the games' titles, icons, and download figures. We are building a site that lets subjects compare two apps at a time based on likelihood of success over and over again. We plan to release this survey to Turkers as well as a random distribution of people around us say in a dining hall. At the end, we will use a variant of Elo's algorithm to assign ratings to the game apps. Comparisons between apps will be chosen so as to distribute the selection of apps uniformly. We will see how well the views of the crowd correlate with the download figures, which we believe is a reasonable measure of the success of an app.

To counter bias due to varying degrees of experience with smartphone apps, we will ask subjects questions about their habits before beginning the study. We will also only show the title and icons for five seconds in front of the user. Our experiment will consist of an online study to be completed by volunteers through social media and potentially paid workers through Mechanical Turk. We decided to gamify our study in order to better incentivize, particularly volunteer, participants to complete the experiment. With the promise to tell users How good is your entrepreneurial gut?, we convince users to begin taking our experiment.

Prior to the actual study, we conduct a brief survey on the participants' online habits in order to gather relevant data to assess whether these habits have any correlation with our findings. The few questions asked include how often participants use a smartphone, or download or use apps. Then, partici-

pants complete a brief demographic survey. Once again, only a few questions are asked – mainly, their age, gender, and country of origin.

For the actual study, we will ask subjects the following questions per comparison between two apps.

- Which app do you think is more successful?
- Please briefly justify your choice.

Participants who have seen either app before will be presented with a new pair of apps. Otherwise, their previous experience could influence their selection. We plan to issue the trials in batches of five. We plan to encourage participants to do more batches by recording their scores (the percent they got right) and challenging them to test how strong their "entrepreneurial gut" is. We may even compare their entrepreneurial acuteness to other participants anonymously. Our goal is to recruit about 5000 participants.

RESULTS

To be determined.

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