

iPhone App Development: How to Thrive in the Flooded App Market

Ruben Lopez

*Jack Baskin School of Engineering
University of California, Santa Cruz
Santa Cruz, United States
rklopez@ucsc.edu*

Abstract— This paper aims to provoke innovative iPhone app ideas while discouraging those that are already flooding the Apple App Store. It also discusses methods for generating revenue and gaining app publicity. By taking a close look at the iPhone’s capabilities, and examining already-successful apps, we see how an app can be unique, intriguing, popular, or just downright useful. Furthermore, through market analysis, we suggest areas of the app market that are worth investing in. We also discuss effective ways of making money (depending on the app and its clientele). Lastly, we stress the importance of viral promoting in order to boost app publicity.

I. INTRODUCTION

Since the 2008 release of Apple Inc.’s Software Development Kit (SDK) for the iPhone’s mobile operating system (iOS), third party developers have been ruthlessly making applications (apps) for the iPhone, and distributing them through the Apple App Store in hope of profit [1]. As an online marketplace, the Apple App Store allows developers to release their product for download, and obtain a share of money made from customer purchases. With the iPhone being one of the world’s most popular smartphones, there is a huge pool of potential customers among the store, which offers developers the possibility of massive profits, that is, if their app is marketed correctly.

While Apple has done an amazing job supporting the developer community with the tools necessary to make an app, the iPhone SDK is almost so simple that anyone with a programming background can publish an app to the Apple App Store. Due to this accessibility, many opportunistic developers have been taking a shot towards creating the app market’s next bestseller, which has caused a rapid increase of incoming apps. While the store only opened with 500 apps or so in July 2008, according to a 2012 Apple Announcement, there are now over 500,000 apps on the market. That being said, competition for app publicity has never been fiercer. There are far too many novice developers publishing apps without realizing the chances of actually gaining a profit. John Martellaro, a writer for MacObserver.com, had an analogy for developers venturing into the Apple app market: that like the Klondike Gold Rush, “only a few get really rich” [5]. With so many apps on floating around, developers are constantly asking: what kind of apps will thrive on the market?

Perhaps an equally important question is, how will the app gain the popularity to become a commercial success?

II. DEVELOPMENT CONSIDERATIONS

Planning ahead (before initiating development) is crucial in today’s overflowing app market. There are far too many amateur developers out there who immediately start on a project thinking it will become a bestseller. Such a narrow fixation on their own project—without really doing their homework—has led to the build-up of so many apps. If a developer wants to avoid being left in anguish and disappointment from a failing app, they need to highly consider what they will deliver. Most likely, an idea for an app has already been done; therefore finding uniqueness is important for avoiding unnecessary competition. Yet in the end, any app that is published will usually share functionalities similar to those all over the app market, so it could just come down to making the functionality superior. In any matter, those who have been smarter, and have taken the time to spot what works and what doesn’t have a higher chance of app market success.

A. Diffusing Misconceptions

Some developers may think that the only way to make a successful app is to mimic the highly downloaded apps on the “Top” lists. The “Top” lists on the Apple App Store are a ranking of popular apps which many iPhone users browse (when on the hunt for a new app). While referring to these lists may seem like a good way to see what is in demand, there is skepticism as to what kind of apps land on the “Top” lists.

According to app developer Marco Arment, the App Store’s “Top” lists are usually just for simple, “shallow” apps that come and go quickly [4]. Arment suggests that the App Store’s “Top” lists only portray a segment of the apps in demand, and that elsewhere, there exist apps that also do well on the market (but aren’t labeled among the “Top”) [4]. He explains that his app, “Instapaper,” (an app for reading web pages) finds itself far from the “Top” lists, but still does successful in an alternate market of clientele that demands complex, more thoroughly-developed apps that are maintained [4]. So although the kind-of apps found on the “Top” lists offer quick market success, there are still other types of apps that can be successful, without catering to the clientele of the

“Top” lists. That being said, while app developers should review the “Top” lists for market insight, they shouldn’t let the “Top” lists sway their development.

A. Utilizing iPhone Technology

When considering an idea for an application, it’s always important to realize the unique physical and programmatic features of the iPhone. The iPhone provides some exceptional technology as a platform, which can be used in an app for an innovative advantage.

TABLE I
SOME OF THE IPHONE’S SPECIAL ELEMENTS

Constant Internet Connection	Always-on the internet (over 3G, 4G, or Wi-Fi)
Extensive Battery Life	Capable for use all day
Location-aware	GPS technology detects where the device is
Orientation-aware	Built-in gyroscope and accelerometer detects movements in space
Camera	High quality photos and video
Unique Input	A smooth finger-based touch screen

While extensive battery life and constant internet connection drive a powerful experience, other features such as the GPS, gyroscope, accelerometer, or camera offer many possibilities in the use of an app.

Developers have found clever ways to use the satellite-sent Geolocation data, which provides pinpoint map coordinates to the device. Whether it be a social networking app that tags a friend’s location, or a running app that tracks a users exact route and distance, the location-aware GPS is being intelligently incorporated into the functionality of many apps. For example, the popular “RunKeeper” app uses Geolocation data to record a runner’s route on live maps so that the user can see not only where they’ve ran, but also how many miles they’ve covered.

Developers have also utilized the gyroscope and accelerometer for its orientation-aware technology. With a gyroscope that detects the device’s angular rotation, and an accelerometer that detects the device’s linear motion, developers have made a variety of stunning apps using the physical movements of the phone. While mostly games and entertainment apps tend to make use of these features for an interactive experience, any kind of app can use the motion-tech for a unique approach.

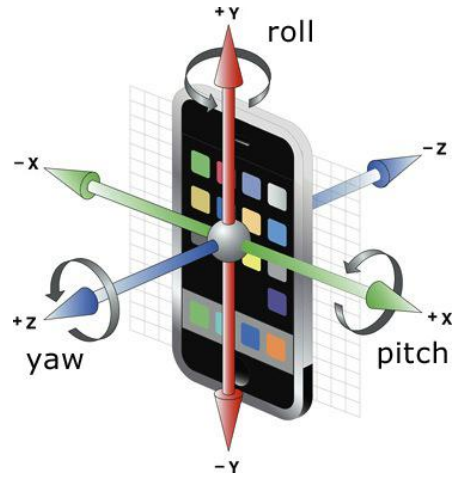


Fig. 1 A 3-axis gyroscope provides orientation information for the device [7]



Fig. 2 The popular “Real Racing” app uses gyroscope controls to steer the car (by tilting the devices yaw) [10]

Another piece of tech worth considering is the iPhone’s high quality built-in camera, which captures exceptionally sharp images and video for a mobile phone. Some developers have made apps that use the camera as a barcode scanner. Even more complex is the “Google Goggles” app which has the ability to make a relevant Google image search based on a captured photo (i.e. it will recognize the content of a photo, whether it be a landmark, a book, a logo, etc.). While these apps make use of the camera, it’s also important to note that their functionality relies on a constant internet connection in order to search the web.

The popular “Instagram” app also uses the camera, which lets users add a retro-style filter to their photos, and instantly share them over a social network. While there are many apps that allow a user to edit photos with filters, focal points, or effects, “Instagram” finds success by additionally plugging in with internet.

Aside from camera usage, apps like “Google Glasses” and “Instagram” tell us that internet usage should be utilized whenever it can in an app to span its functionality. As shown with the rapid success of “Instagram,” using the internet for social interaction in the use of apps has proved to be effective in gaining popularity. This is because users are interacting

with other people, which compel them to keep using the app. After all, being social is what makes us human. Apps can feel more important when they are actually interacting with real people. Take the “Words With Friends” app for example, which is just a mobile version of the iconic Scrabble board game. How is it that with all the next-gen, complex games out there, the classic board game can rank supreme? It is due to the social aspect of the game, where users must start a game with a friend, and play over their iPhones. Apps that offer social exchange can make the app seem refreshing and ever-changing due to the human input.

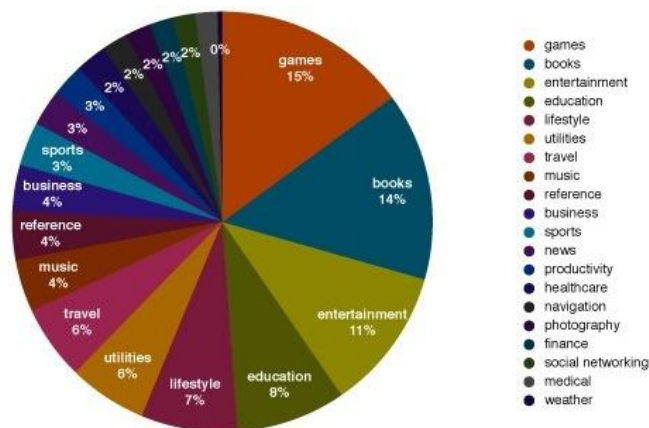
III. MARKET ANALYSIS

Attaining app market insight can be helpful before venturing into development. As of 2012 analysts estimate that the mobile app market has generated over \$4 billion [2], but where is all this money going? By examining Apple App Store statistics, developers can see what kind of apps iPhone users are downloading, and realize what kind of apps are in demand. Such information can help developers attack the market in the right areas for greater chances of app market success.

A. Looking at Categories

In the Apple App Store, every app is labeled under a category such as games, books, entertainment, lifestyle, utilities, etc. Some categories receive more downloads than others.

As shown in Fig. 3, games are being downloaded the most by iPhone users. Yet, this doesn’t necessarily mean this is a good spot to invest development. Recall the Klondike Gold Rush analogy, where only a few get really rich. The massive amount of downloads (for games) are most likely only heading to a few game apps, rather than the entire collection of game apps available. That being said, although games



MOST POPULAR ITUNES CATEGORIES, RANKED BY DOWNLOAD

Fig. 3 Pie chart shows the category proportions for total downloads in the Apple App Store. Percentages are from 4/1/2011 [3].

receive a lot of downloads, it’s a risky place to deliver an app because experienced companies and teams are dominating that area of the market, leaving smaller game developers little chance of receiving downloads. Zynga, a company that develops game apps that work with social networks, has over 400 employees and around 20 games on the app market [2]. With the downloads and purchases they receive from their apps, they pull in a nine-figure revenue every year [2]. Powerful companies such as Zynga make the competition fierce in the games category. The crowded game market has evolved to the point where now, only teams and companies have a real shot at making a popular game. Luckily, there may be other categorical areas where the competition is lower, and the category hasn’t become overcrowded yet.

Looking at Fig. 4, we can see how the downloads of certain categories (lifestyle, games, entertainment, education, and books) have increased or decreased overtime. In orange, the

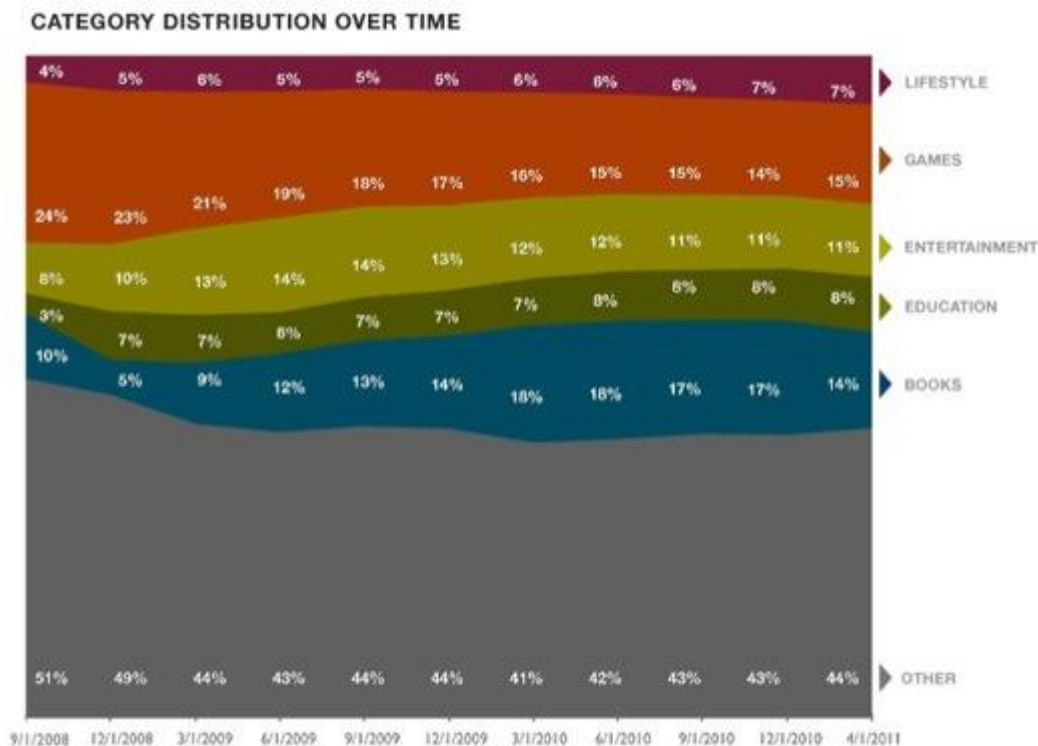


Fig. 4 App Category distribution (ranked by download) over a span of about three years (2008 – 2011) in the Apple App Store [3]. Note: the gray portion consists of all *other* app categories not mentioned in the graph.

games category has remained as the majority, but has diminished from 24% to 15% over time. In contrast, the lifestyle category (in purple) only started at 4%, but has had a substantial rise to 7% over time. The education category also shared this increase, going from 3% to 8% overtime.

While it may not seem like much, relative to the size they started at, lifestyle and education apps have had a significant increase in downloads. This suggests that apps that are considered “useful” or aid productivity are being downloaded more and more [3]. Therefore, developers should cultivate this area of the market, not only because it is rising in demand, but because it also less crowded.

IV. GENERATING REVENUE

Making a profit can seem daunting given the low price of apps in the Apple App Store. In today’s flooded app market, a certain degree of time and money must be invested in order for an app to gain visibility, but with most apps going for \$0.99, it can be difficult to outweigh the development costs. According to developer Craig Hockenberry, some projects can cost thousands due to a software developer’s expensive labor [5]. In one situation, he explains that at an hourly rate of \$150-200, development costs can come out to \$80,000 for a three month project, which means he’d have to sell 115,000 copies at 99 cents in order to break even [5]. Although development costs will vary, a buck for quality software can leave developers in debt.

A. Pricing

Many developers feel that if they mark their product higher than the usual \$0.99 price tag, then they’re app won’t receive as many downloads, but Dan Burcaw of Double Encore, Inc. disagrees. He explains that “some apps are designed to be volume apps, but others shouldn’t be,” and that “understanding the customer’s needs is vital” [5]. Burcaw believes that for some apps, customers will value the product if the price is higher. In one case, he explains how a developer increased his app price from \$0.99 to \$1.99, and as a result, the app received more sales [5]. Take the educational periodic table app, “The Elements,” for example, which is priced at a whopping \$6.99 on the Apple App Store. The company realizes that their potential customers value education, so in order for the app to be taken seriously as an educational tool, the high price is more than appropriate. Much like the U.S. college textbooks today, although overpriced, parents—will without a question—buy the \$150 books because they value their child’s education.

B. Additional Income Methods

Of course, high app pricing is only appropriate for certain kinds of apps, so if raising the price is out of the question, there are other ways of making money than just solely relying on raw app sales. Many developers are making additional revenue from selling digital goods used in apps [2]. Zynga’s popular social app game “FarmVille,” in which users grow digital crops and sell them for virtual money, is a prime example of an app that sells digital goods [2]. While Zynga doesn’t charge users to play “FarmVille,” they do sell in-game

digital crops, cattle, and farmland for real money [2]. For example, users can buy corn seeds at the cost of 10 cents, or even cows for 20 cents [2]. Although the charges seem tiny, they can really add up. One recent digital good that Zynga whipped up—digital sweet potato seeds that cost \$5 a packet—pulled in over \$400,000 in its first three days [2]. While selling in-app digital goods may seem strange, it has the ability to retain users and increase revenues.



Fig. 5 FarmVille’s in-game currency (for buying digital goods) is available for purchase with real money

Another way to make money is from ads within apps. AdMob, for instance, is a service by Google that allows developers to monetize their app by integrating ads into their app [6]. It works so that once the ads are in place, the developer gets paid every time users clicks on ads in their app [6]. Whether it be intentional or just an accident, it’s easy for an app user to make the occasional tap on an advertisement. Since revenue from ads depends on the app’s traffic, some of the more popular apps have made hundreds of thousands in AdMob revenue [9].

V. APP PUBLICITY

Sure, a developer can have an awesome app, but in the end it’s almost worthless if people can’t find it. “The sheer number of apps in the [Apple] App Store make it difficult to gain much visibility,” says developer Chuck Soper of the Vela Design Group [5]. Gaining app publicity is arguably one of the most important steps for success in the flooded app market. App developer Dan Burcaw, couldn’t agree more; he explains that the “real battle is getting eyeballs on the product” [5]. Luckily, there are ways to do this.

Having a website that not only shows off the functionality of the app but provides a direct link to the Apple App Store is a necessity. A developer can’t just rely on customers to simply stumble upon their app as they navigate, unguided through the store [5]. Customers need ways of arriving to the product such as a direct link from the app’s website. With the Apple App Store’s limited search options, it can be hard for customers to find what they’re looking for through the store, but with efficient internet search engines like Google, finding

a website can be easier. With websites increasing accessibility, app awareness can be improved.

Viral advertising is also a great way to promote an app. Aside from getting paid for hosting ads, AdMob also provides a service where developers can display an ad of their own on other people's apps [6]. This is known as the AdMob Download Exchange, where developers can trade app traffic in order to promote each other's apps [9].

How It Works



Fig. 6 The AdMob Download Exchange cycle [9].

Finding the *right* places to advertise can be tricky, but with the AdMob exchange service, developers can ensure their app is being spread virally, all over the app marketplace. Such advertising can draw lots of new users since clicks on the ads can turn into app downloads [6]. Although a developer pays some amount of cents every time a user clicks on their ad, the miniscule fee is worth the publicity, and will generate more downloads.

VI. CONCLUSIONS

The Apple App Store is a crowded marketplace where unique innovation can be rewarded if it is recognized. Although tempting, developers shouldn't feel obligated to make volume apps like those on the "Top" lists because they only represent a segment of apps in demand. Most of the apps on the "Top" lists are games, which tend to have high

investment requirements, making this area a difficult place to compete in [4]. While subtle, there are other areas of the app market where demand is increasing. These consist of app's that are considered "useful" or aid productivity. That being said, developers should design apps that cater to this area of the market because competition is low and downloads are abundant. Furthermore, to ensure a unique approach (and set apart from the amateurs), developers should make use of iPhone's physical and programmatic features. Incorporating iPhone tech with the use of apps has made for some of the most popular and successful apps on the market. It's also important to understand the customer's needs, not only to determine an appropriate app price but to make sure in-app digital goods are purchased. Lastly, regardless of how great an app is, people need to know it exists; therefore an app should have a supporting website and be virally promoted in order to improve accessibility and increase downloads.

REFERENCES

- [1] J. West and M. Mace, "Browsing as the killer app: Explaining the rapid success of Apple's iPhone," vol. 34, Telecommunications Policy, 2010, p. 270.
- [2] D. Macmillan, P. Burrows, and S. Ante, - Inside the App Economy, [Online], http://www.widality.com/business_week_app_economy.pdf (Accessed: 20 August 2012)
- [3] iPhone App Development: What Apps Should You Create?, [Online], <http://www.approachmobile.com/iphone-app-development> (Accessed: 15 August 2012).
- [4] M. Arment, - The two App Stores, [Online], marco.org/2009/10/09/the-two-app-stores (Accessed: 7 August 2012).
- [5] J. Martellaro, - How to succeed in Apple's App Store, [Online], macobserver.com/tmo/article/how_to_succeed_in_apples_app_store (Accessed: 20 August 2012).
- [6] AdMob by Google, [Online], google.com/ads/admob (Accessed: 20 August 2012).
- [7] List of Available Elements in Mobilizing, [Online], fdm.ensad.fr/wiki/doku.php/en/reference (Accessed: 15 August 2012).
- [8] Real Racing: Most Beautiful Race Game, [Online], iphonefreakz.com/tag/real-racing (Accessed: 15 August 2012).
- [9] Ewan MacLeod, - Mobile Industry Review, [Online], mobileindustryreview.com/2009/04/me_what_about_the_400m_o_v_i_compatible_hand_sets_by_dec_2010_iphone_dev_rockstar_uhhh.html (Accessed: 21 August 2012).
- [10] FarmVilleFreak, [Online], farmvillefreak.com/Farmville-freaks/Farmville-40-farm-cash-phone-promotion (Accessed: 25 August 2012).