

Mobile Applications Research Study

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By: Eric
Lehnen

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ABSTRACT

This is an introductory exploration in the effectiveness and applicability of mobile applications in terms of marketing and advertising. Mobile applications can be used as a tool for campaigns and a medium to publish advertisements. While applications used as a medium for publishing advertisements are unsaturated, their overall engagement with users is higher than browsing in relation to how much eye time they aggregate. Despite the benefits of using mobile applications by marketers and advertisers, mobile websites are still used as an alternative in terms of a campaign platform which is entirely about promoting the brand or product and a medium for publishing advertisements. However, both instances of mobile applications and mobile websites, they have demonstrated success accomplishing promotional objectives. Each has advantages over the other, but marketers and advertisers are still relying primarily on a trial and error approach to situational effectiveness and applicability.

OBJECTIVE

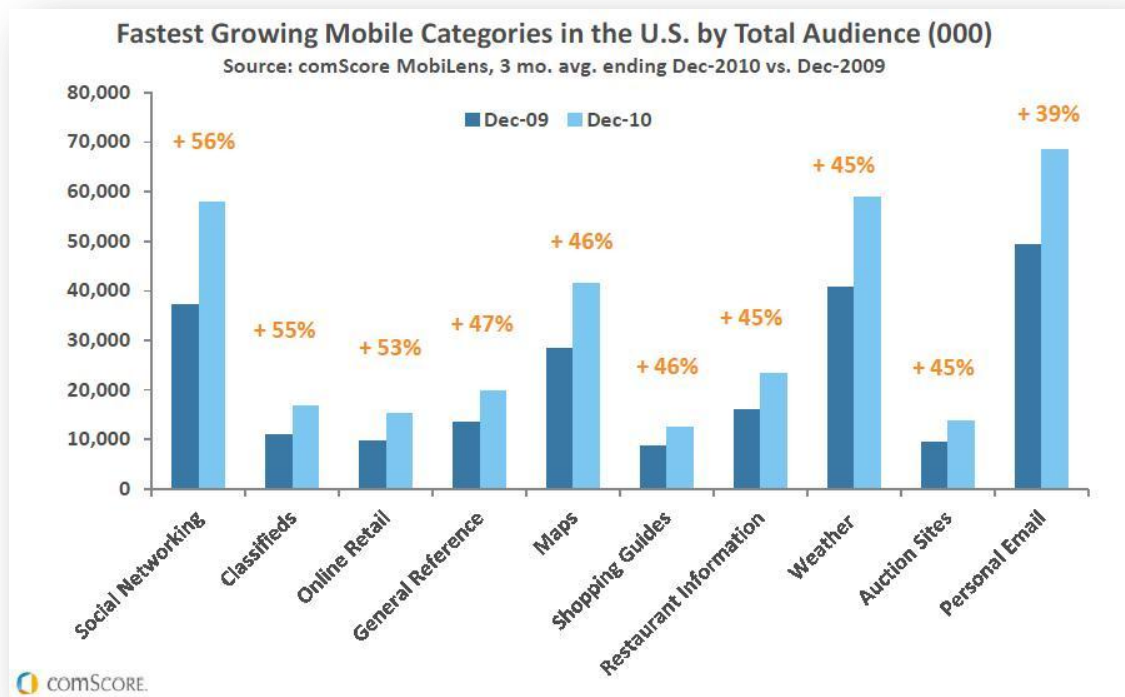
To understand uses and strategies for mobile applications while examining alternatives and obstacles that marketers and advertisers currently face and hopes to improve campaigns and the overall user experience.

SMARTPHONES

Mobile devices have advanced in technology and are increasingly more difficult to keep up with, even for the most tech savvy consumers. Smartphones are a partition of mobile devices that are growing in features and shrinking in size and cost. To compare, *PC Magazine* published an issue in 2004 that reviewed the latest smartphones. As little as seven years ago, these phones were the best at their time with \$600 price tags (Segan & DeFeo, 2004). These phones would be considered the most basic phones that consumers would get for free with a new contract or an upgrade in current technological standards. These phones carry the name “feature phones” today because they host fewer features than smartphones. Simply put, mobile devices are divided into two categories: smartphones; powerful, multitasking devices and feature phones; everything else that is not a smartphone.

While there is a growing trend of smartphone usage because of their ability to perform more tasks than feature phones while also remaining a cost competitive device, it is clear that there is more and more use over mobile phones in general. Take for instance the

2009-2010 changes in mobile categories: everything from social networking to auction sites increased in use by a minimum of 39%:



This increase in usage shows the massive growth of use with mobile devices. Additionally, new key changes in the market have allowed for new opportunities and competition. The most notable key changes were the introductions of the iPhone and the Android mobile operating systems. These two competitors have just about changed everything about consumer behaviour. Advertisers and marketers alike have all found tremendous opportunity with these devices because of the technology that allows the consumers to perform amazing things, and these devices are setting the most powerful trend in the way we interact with each other and live our lives.

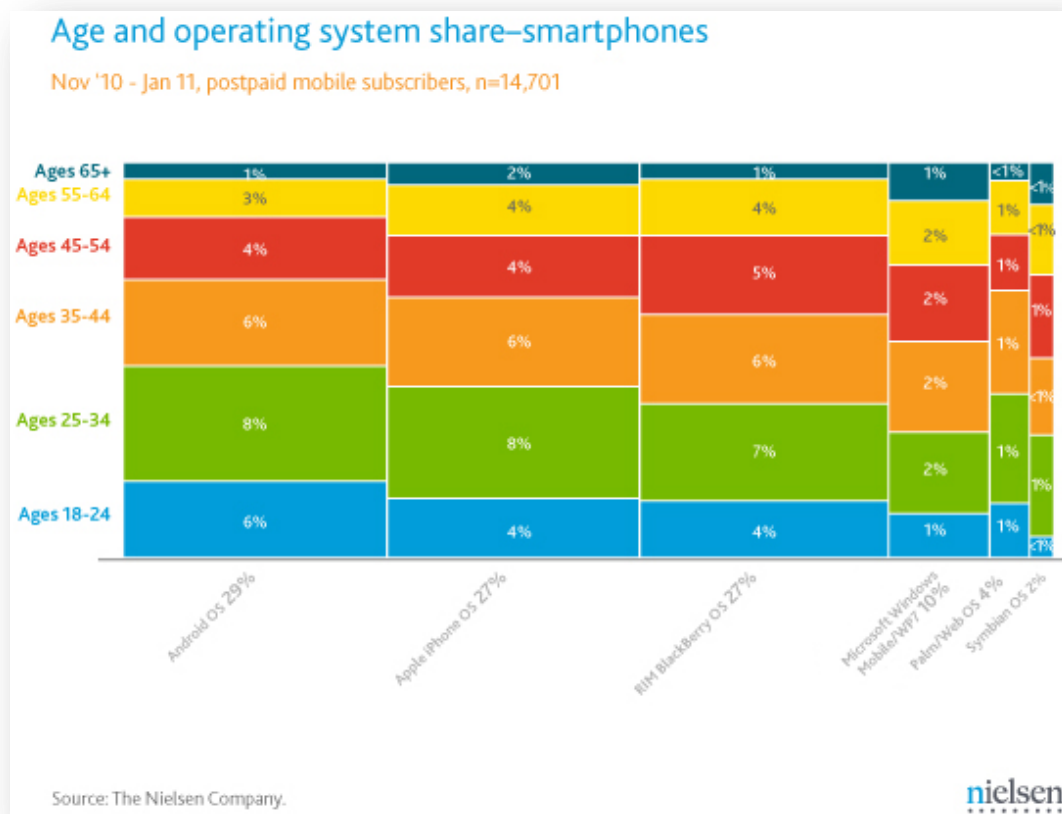
OPERATING SYSTEMS

There are 228 million people with mobile phones in the US and 31% of which are smartphones (The Nielsen Company, 2011). In addition to multitasking and rich features, operating systems are another defining element of making smartphones, smart. The operating system is what makes it powerful. It allows for advanced organization, function, integration with the internet and many other advanced features. The environment of the operating system is also another important feature because it is designed around the user. It organizes information in a specific manner for the users. For instance, Android has different home screens that can place “widgets” on the screen. Widgets can hold specific

shortcuts, placeholders of information, feeds that synchronizes with the internet such as Facebook and buttons. The operating system for Apple is simply an arrangement of all of the install applications in columns and rows.

Smartphone users come from all demographics and psychographics but the users of smartphones can be segmented by which operating system powers their device. The three big competitors in the mobile device industry according to market share are Android, Apple, and BlackBerry. Android entered the market with its first Android device less than three years ago: the T-Mobile G1 (HTC, 2008). Since 2010, Android has more than tripled its market share to 37% and now holds the title of the most popular mobile operating system in terms of market share. The remaining market shares includes: Apple (27%), BlackBerry (22%), Microsoft (10%), Palm (3%) and Symbian (2%) (comScore, Inc., 2010; The Nielsen Company, 2011).

User Differences



Many of the differences seen between the three big competitors are its users. The above graphic shows the operating system’s demographic breakdown. The market shares are superseded by the most recent Nielsen report stated previously. While there is a slight difference in age groups across platforms, it does not vary more than 5% (The Nielsen Company, 2011). Again, there is a slight difference in gender preference of mobile operating systems. Women prefer iOS from Apple by 2% more however, men prefer Android by 10%

more (The Nielsen Company, 2010). Typically, 13-17 year olds are not included in smartphone demographic data but it should be noted that they are the fastest growing smartphone users with a total volume of 4.3 million (comScore, Inc., 2011).

Differences in Mobile Applications

Another significant difference is the mobile applications available to each operating system. Apple has around 400,000 iPad and iPhone mobile applications, Android with 200,000, and BlackBerry with 27,000 (Spriensma, 2011; Empson, 2011). The Apple App Store has an application process for 3rd party applications for the iPhone, iPod and iPad. On the contrary, Android does not have an application process, just a registration of the developer and once registered, the developer can freely post applications without approval. It should also be noted the difference of the number of free applications available. Android has the most free applications available compared to Apple; 134,000 and 122,000 respectively (Spriensma, 2011). But Apple has about three times as many paid mobile applications as Android (Spriensma, 2011).

According to Pawan Kumar, a senior research analyst from MarketsandMarkets, marketers and advertisers need to be aware of mobile operating systems and how they play a huge role in reaching the target audience through mobile applications. Each operating system is different which causes fragmentation over operating systems and mobile applications (as cited in Tsirulnik G. , 2011). This fragmentation can make applications from one platform to another fail because they are not created the same. When problems occur between platforms over similar applications, it creates a barrier. Users with a certain platform will only use applications

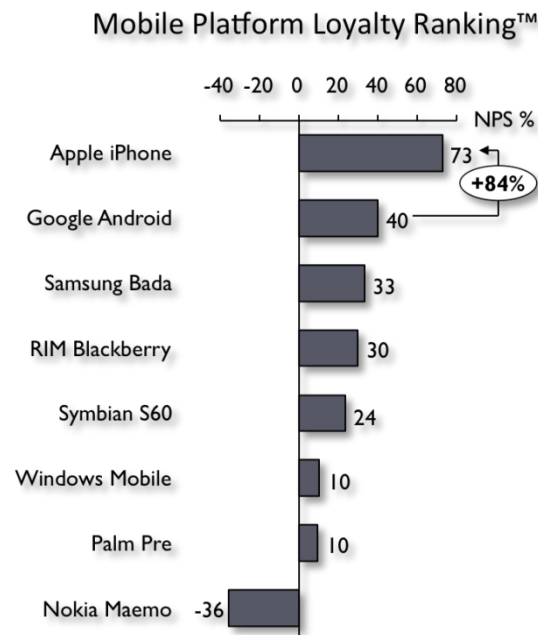
Furthermore, each of the three big competitors have discovered and refined their competitive edge with their operating system. For instance, Android diversifies itself through its personalization of its user interface. Apple, reliability, stability and simplicity. BlackBerry, slight a mix of both.

Buying Behavior of Operating Systems

Regardless of the demographics based on operating systems, many campaigns use the iPhone as their choice of platform because it has more market awareness because phone and operating system are made by the same company while there are many manufactures for Android devices. Some of the larger manufactures are Samsung, Motorola, and HTC.

Android has a higher repurchase rate of its devices than iPhone or BlackBerry (Zokem, 2011). Repurchase rate is relevant to marketers and advertisers because if they want to launch a long term campaign, it is useful to know if users are going to be switching devices for a competing operating system. With 89% of Android users coming back to

Android and 85% of iPhone users going back to iPhone, it shows that these two platforms are solid platforms in consistently keeping consistent users (Zokem, 2011).



Apple has higher brand loyalty, around an 84% difference in loyalty compared to Android (Zokem, 2011). BlackBerry is last in brand loyalty compared to the other two with 25% less brand loyalty than Android (Zokem, 2011). The iPhone was the first to enter the market with downloadable mobile applications which could explain the higher brand loyalty. However, Android and BlackBerry are creating similar products such Tablet computers in order to compete with product differentiation. Bottom line is that each of the three key competitors can do similar tasks, the main difference between them are mobile applications.

MOBILE MEDIA

The two mediums of advertising discussed in the sections ahead are: mobile applications and mobile websites. The two can be easily distinguished: a mobile application is a downloaded application from the respective application store while a mobile website is accessed from a mobile browser which displays a condensed version of a full version website shown on a computer.



Example of a mobile website on left and full website on right.

Smartphones have access to vast amounts of media and content. For advertisers, this media and content is delivered to the users in many different ways. One way for advertisers is through mobile applications. Mobile applications can be created for a campaign tool, such as a game designed for users to interact with a particular brand. Mobile applications can have no affiliation with a brand or simply host mobile ads through ad networks such as AdMob, which has two billion ad requests daily (Tsirulnik G. , Where do Google AdMob’s 2B daily ad requests come from?, 2011). Similarly, mobile websites have the same capabilities. They can be used as a dedicated site to promote a specific brand or they can be an every-day mobile website that has banners and ads on it.

MOBILE APPLICATION WITH MOBILE AD



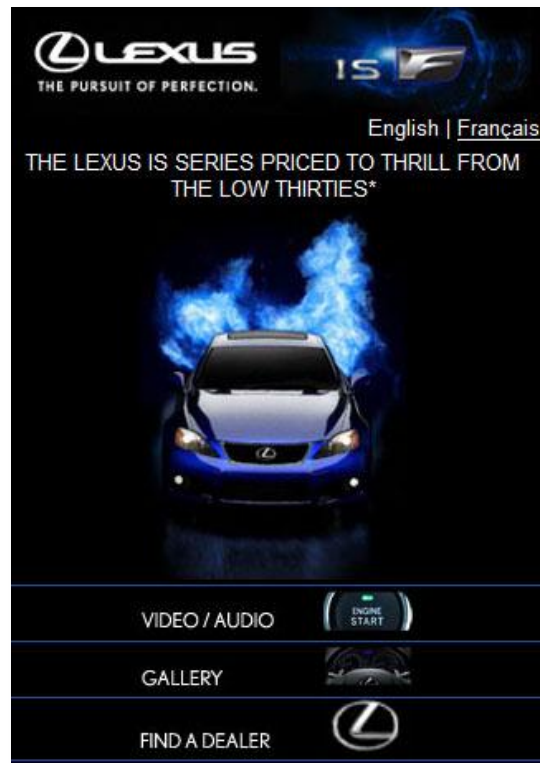
MOBILE WEBSITE WITH MOBILE AD



BRAND MOBILE APPLICATION



BRAND MOBILE WEBSITE



A study by comScore (2011) found during the month of December 2010, 36% of US smartphone users used a browser at least once and 34% used an application at least once (comScore, Inc., 2011). The difference is not significant and shows that they are equally used with no indication of usage preference.

The advertising value for 2011 for mobile devices is forecasted to reach \$1.24 billion in revenue and over \$5 billion by 2015 (Smaato Inc., 2010). Mobile applications can help increase this forecast with the amount of opportunity they bring to the market. However, as advertisers and marketers try to develop strategies for potential mediums of communication to their target audience, they need to consider cost effectiveness and penetration.

Mobile applications are a tool for marketers and advertisers but not a total solution, nor are they the only tool, or the best. There is a forecast of explosive growth with mobile advertising and campaigns, but some advertisers and their clients alike believe that the costs of mobile applications outweigh their benefits and instead opt for a less interactive and lower-cost approach with a mobile website.

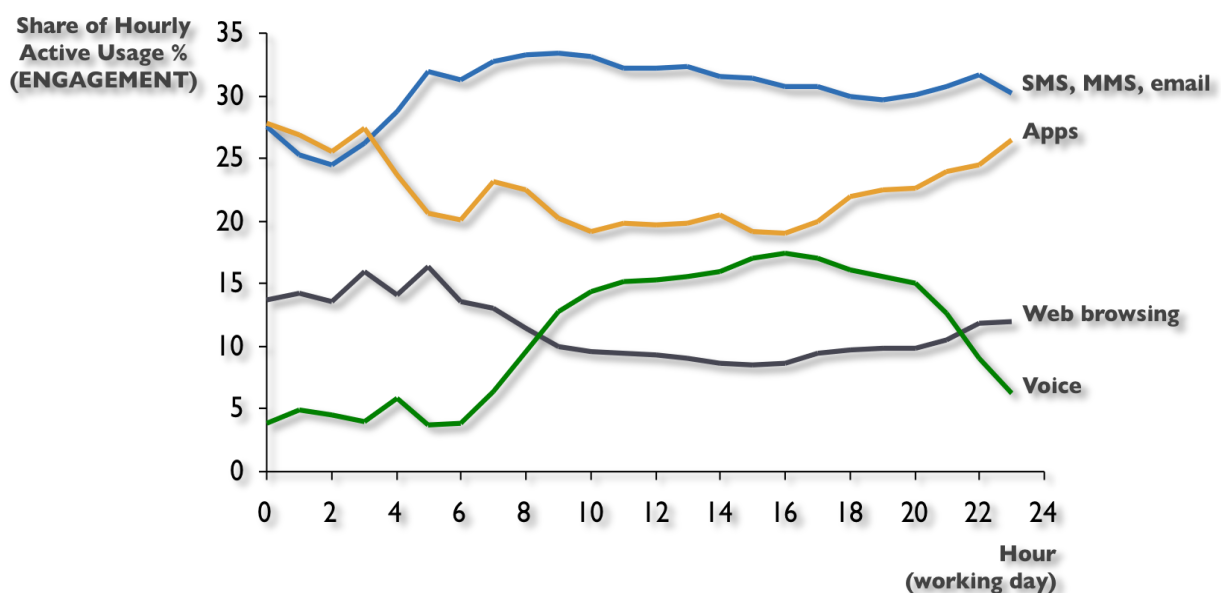
MOBILE APPLICATIONS

Mobile applications are a huge dividing point between smartphones and feature phones because they allow for phones to use applications that were designed by 3rd party developers and are typically not designed by phone manufactures. According to Stephanie Baghdassarian, a Gartner analyst, mobile applications possess two purposes (qtd. in Lamb, 2011):

- **A medium for advertisements to be placed within the application such as a banner at the bottom of an app.**
- **An interactive tool for engagement with a brand or company such as a game in relation to the brand.**

Regardless of their use, Zokem researched how much time is spent with a mobile device depending on the time of day. It shows that application use is engaging users more than browsing. The interesting find was the time at which they start to increase use. During the day users are communicating more. In the evening, communication is less related to work and usage. Web browsing and application use increases as the night goes on (Zokem, 2010).

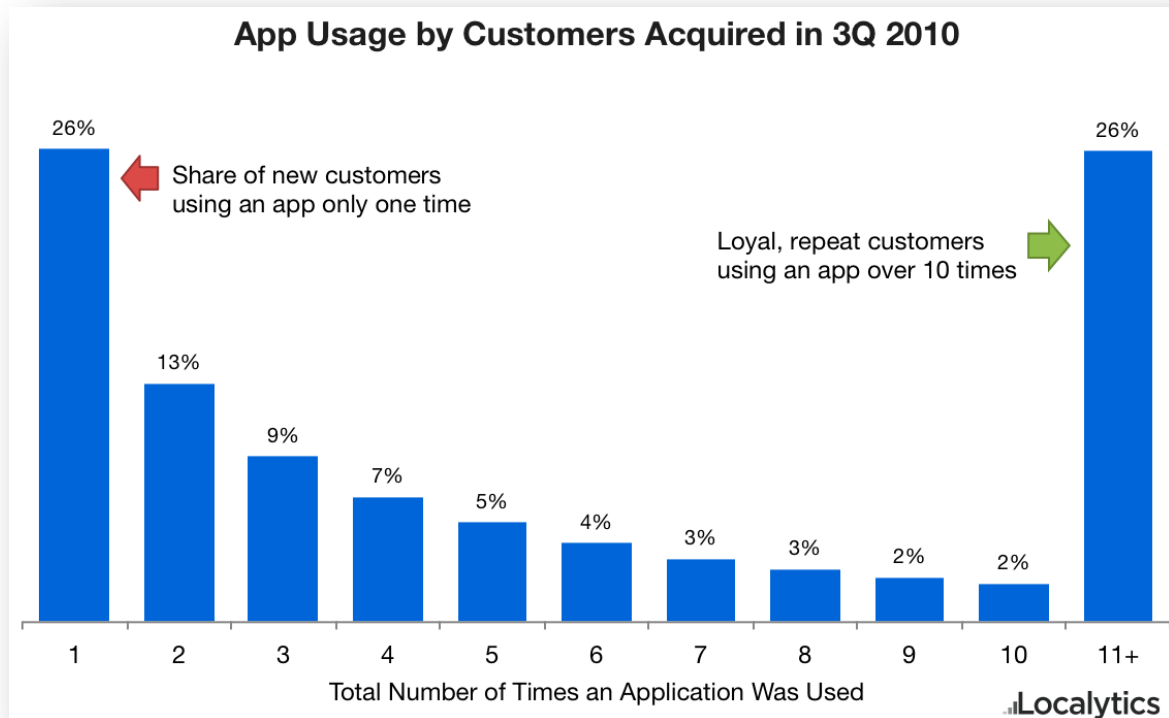
Use of Smartphone vs. Time of Day - Relative



This presents an opportunity for advertisers since there is a large margin of time spent in applications instead of web browsing. Currently there are only 5% of ads published are placed in apps, games, mobile, television and video. While 5% now is not significant, it is more widely accepted as a useful place for advertisements (Lamb, 2011).

Mobile applications are very interactive and engage the user much more than browsers do. However, a study conducted by Localytics found that there is a trend that 26% of customers only use an app once, while the other polar side has 26% of users using an app

10 times or more. The quality of applications is not as rich in engagement yet, even with the 400,000 iPhone/iPad mobile applications and 200,000 Android mobile applications (Pettey & Goasduff, 2011; Empson, 2011). There could also be a large gap between useful and not useful mobile applications or ones that are simply needed once. Regardless, mobile applications are a more commonly used tool for advertisers and marketers.



William Bodin, the chief technology officer at IBM, had a very good reason to turn to mobile applications (King, 2010). In order for employees to schedule conference rooms, to approving purchase orders, accessing marketing materials, they had to be logged into a desktop PC. With mobile applications, they can do all of this mobile. This trend will continue in the corporate world because by 2015, half of devices used will be mobile (King, 2010). Although this does not really explain how marketers and advertisers can use mobile applications for reaching consumers, it does however explain that mobile applications are growing in use.

“Apps are either free or fantastic,” says William Clark, research vice president for Gartner. “If your app is not incredibly useful, it is very difficult to get customers to reach their wallets. Charging for an app could kill the chance to have explosive and viral growth. Apple, Google and [BlackBerry] take a 30% cut on paid mobile applications (Del Rey, 2010). However, the primary focus is how advertisers and marketers can use these to enhance campaigns to reach their target audiences.

To demonstrate the practicality of mobile applications as a marketing tool, four companies: Thrillist, Chinook Book, Promises Treatment Centers, and HeadBlade developed

applications. These applications were made in response to needs of the business, such as building brand awareness, but also a way to stay competitive. Each company has a brief overview, goal(s), cost, results, and what made it work.

THRILLIST

The original Thrillist business model was sending 2.5 million subscribers daily emails about new bars, restaurants and shops in 18 different cities. The app was created in order to attract subscribers to Thrillist while away from computers and create as many opportunities for the subscribers, which were mostly young men.

Their initial approach was to “create your own adventure book”: first starting at a bar and asking the consumer to choose between something like ordering a drink or approaching a single woman. The idea however lacked the utility. Eventually Thrillist wanted to use location as the utility in the app. They checked out other applications made by Yelp and Citysearch. However, the difference between them is that Thrillist highlights “approved” businesses.

GOAL – Differentiate itself by offering a location based search of new businesses

COST – \$50,000

PLATFORM – iPhone with Android and iPad coming soon

RESULT – 160,000 downloads in 4 months.

WHAT MADE IT WORK – half utilitarian and half fun

CHINOOK BOOK

Chinook book produces print coupon books that contain discounts for hundreds of green eco-friendly businesses in six cities. The president felt that there was an opportunity with smartphone coupons since they are much more convenient than the paper format. However, the book is also sold by schools as a fundraiser and didn’t want the app competing with them. The app would become free to download, but in order for customers to use the discounts, they would have to purchase a code to redeem coupons. The coupon code for the app costs \$16 and is free if the print book is purchased. Additionally, when a coupon is used, it will become un-redeemable again.

GOAL – Keep up with the technology by providing a more convenient use for coupons

COST – \$200,000 including consultation and development

PLATFORM – iPhone

RESULTS – Downloaded 2,300 times and 550 coupons were redeemed in first three weeks.

WHAT MADE IT WORK – The added convenience

PROMISES TREATMENT CENTERS

Promises Treatment Centers provides alcohol and drug rehabilitation programs with a touch of luxury that attract celebrities such as Britney Spears and Lindsay Lohan, which can cost around \$2,000 a day for treatment. They have two centers located in Los Angeles that treat 350 patients a year and receive most of their business from referrals via mental health professionals. Since alcoholism affects memory and withdrawal enhances the difficulty forming and retrieving memories, they needed to develop an application that would help patients prevent relapse and a better post treatment outcome.

GOAL – develop an application that helps patients track their moods, feelings and accomplishments through a 12-step calendar.

COST – Unknown

PLATFORM – iPhone

RESULT – 4,000 downloads, awareness of treatment centers, and made top of iTunes list

WHAT MADE IT WORK – Simple and easy application that was always available when the patient needed it

SHAVEMYHEAD

HeadBlade makes specialty razors for shaving heads and usually advertisements through athlete endorsements and magazine ads. “The idea was to build brand awareness by inciting laughter.” Once the user imports a photo, crops their hair and adds funny effects like beards or a mustache, they can save and share it via Twitter, email or Facebook.

COST – \$30,000

PLATFORM – iPhone

GOAL – Create awareness by offering a free application

RESULT – Averaged 1,000 downloads a week in the first two months. Saw a modest boost in website traffic. Plans to break the 100,000 mark in a year.

WHAT MADE IT WORK – Fun, free, engaging app that possessed a simple idea to show what someone would look like with a shaved head.

MOBILE WEBSITES

Mobile websites serve as an alternative for producing mobile applications and have had success by achieving a great audience. What sets them apart is their engagement with the user. Engagement can be expensive and in some instances, extraneous. Point being, great engagement is not always needed in a campaign to produce a more effective medium for advertising networks.

An application has two tools for marketers and advertisers: a medium for publishing ads and as a campaign tool. The same goes for mobile websites: a medium for publishing ads and a campaign tool such as a mobile website for a particular brand. Mobile websites for popular sites present key advertising space for brands to place advertisements. In one case, mobile websites produces a higher click through rate than applications according to a case study by Continental Airlines (Mobile Marketing Watch, 2010). Continental Airlines placed an identical ad in both the Whitepages.com mobile application and on its mobile website. The mobile site experience a 135% higher click through rate than the mobile application for Whitepages.

This difference could be because of two things. One could have been because consumers instinctively start on the web to search a query. The other could have been because of leaving the application environment that led to the success of the higher click through rate on the mobile website. Users who interacted with Whitepages' application, the change from clicking on a banner ad would disrupt their original intentions because clicking on the ad would bring them to the mobile browser.

Emily Jolly, an Interactive Project Manager at Preston-Kelly experienced a similar situation. Her clients demanded more mobile websites because mobile applications are very expensive in comparison (Jolly, 2011). She also stated that the difference between different operating systems it can significantly affect a mobile application but mobile browsers are unaffected by the difference in mobile operating systems (Jolly, 2011).

Mobile Marketing Watch also noted another mobile website campaign to examine is Volvo's S60 mobile website made by Mobext. This campaign features a "rich-media" mobile website with a video that will play before accessing the mobile website (Tsirulnik, G., 2011). This is an alternative to an application because the user does not need to download it from a store to view the content or search for it – a main advantage because the campaign is set out to get the attention of the audience, rather than the audience coming across the application. The campaign was able to achieve a 3.91 percent click through rate and users after the campaign had a 240 percent increase in brand favorability with 88 percent increase in purchase intent. Even for the users who have feature phones, many can still access the internet; approximately, 48% of all phones have full html capability (comScore, Inc., 2011).

CONCLUSION

Both applications and mobile websites have their own solution to different problems. Applications have the ability engage users more depending on if the application is the tool, not the medium. Mobile websites can present interactive content and have success in both a medium and a tool. It primarily depends on how big of a splash that the campaign is looking for and the budget of the campaign.

Advertisers and marketers have a lot of opportunity coming in the future and the digital medium is going to explode in the next five years. They will have to work on making applications across different operating systems become more seamless and less fragmented experience. Pawan Kumar recommends marketers to “prepare an ecosystem of fit-to-all applications that need not to be customized for each mobile device, this will provide a higher reach.” If developers and marketers are able to settle the fragmentation of applications across operating system platforms through modifying application processes and improve the transparency between platforms, it will become easier for users to use mobile applications and be reached by marketers and advertisers.

Another severe problem that applications have is the time spent on mobile applications after the first use of them. After the first use of a mobile application, the likelihood of it being used again in the future, fall dramatically. However, there are many mobile applications that receive generous loyalty with 11+ future uses (Empson, 2011).

Overall, reaching the audience through applications is a little unorganized. In order for more effective campaigns to be executed, there needs to be an environmental change that integrates all mobile operating systems to work more cohesively. Hopefully this problem will work itself out once manufactures for different operating system platforms let down their barriers.

Despite problems with mobile applications, there is growth as a medium of communication and a tool for a campaign. The best way to promote this growth is for advertisers and marketers to understand the differences between mobile operating systems and learn to embrace them. Acknowledging problems are a must, but accepting them as an obstruction is depriving of future improvement for the greater of smartphone users.

RAMIFICATIONS

Marketers and advertisers need to be aware of pros and cons but learn to use them as an advantage and embrace them to improve the mutual experience with users. The hope is to persuade marketers and advertisers to put pressure on manufactures of smartphones and mobile operating system developers to improve mobile applications to be a more

widely expected medium of communication and to improve the overall mobile applications user experience.

AREAS FOR FUTURE RESEARCH

It is clear that the behaviors of smartphone users are changing: the way they access information, how they get it, how often, how they socialize, etc. With more understanding of what modifies behavior, it will prevent users from becoming isolated and a digitally-social individual. This addiction to media can be a problem and we need to respect media and prevent abuse. Otherwise we can become a slave to media and be at the mercy of its power.

More research and development of applications over varied platforms will help improve user experience and development of better platforms and defragment the features over different platforms. Additionally, if developers of mobile operating systems work together to break down the barrier which separates different features and mobile applications, users and companies from each platform will have a better overall experience.

BIBLIOGRAPHY

comScore, Inc. (2010, April 5). *comScore Reports February 2010 U.S. Mobile Subscriber Market Share*. Retrieved March 15, 2011, from http://www.comscore.com/Press_Events/Press_Releases/2010/4/comScore_Reports_February_2010_U.S._Mobile_Subscriber_Market_Share

comScore, Inc. (2011, February 7). *The comScore 2010 Mobile Year in Review*. Retrieved February 28, 2011, from http://www.comscore.com/Press_Events/Presentations_Whitepapers/2011/2010_US_Digital_Year_in_Review

Del Rey, J. (2010). App Time. *Inc.*, 32 (10), 116-123.

Empson, R. (2011, March 15). *Mobile App Users Are Both Fickle And Loyal: Study*. Retrieved March 15, 2011, from TechCrunch: <http://techcrunch.com/2011/03/15/mobile-app-users-are-both-fickle-and-loyal-study/>

HTC. (2008, September 23). *T-Mobile Unveils the T-Mobile G1 — the First Phone Powered by Android*. Retrieved April 4, 2011, from HTC Press Release: <http://www.htc.com/www/press.aspx?id=66338&lang=1033>

King, R. (2010, November 2). Mobile Business Apps Flourish at IBM, Google. *Business Week*, 1.

Lamb, R. (2011, January 31). *In-app advertising is an opportunity for luxury brands: analyst*. Retrieved April 13, 2011, from Luxury Daily: <http://www.luxurydaily.com/in-app-advertising-is-an-opportunity-for-luxury-brands-analyst/>

Mobile Marketing Watch. (2010, January 21). *Case Study: Mobile Web Ads Gain 135% Higher CTR Than Mobile App Ads*. Retrieved April 11, 2011, from Mobile Marketing Watch: <http://www.mobilemarketingwatch.com/case-study-mobile-web-ads-gain-135-higher-ctr-than-mobile-app-ads-5003/>

Pettey, C., & Goasduff, L. (2011, January 26). *Gartner Says Worldwide Mobile Application Store Revenue Forecast to Surpass \$15 Billion in 2011*. Retrieved April 13th, 2011, from Gartner Newsroom: <http://www.gartner.com/it/page.jsp?id=1529214>

Segan, S., & DeFeo, J. (2004, October 19). *Smart*. Retrieved April 20, 2011, from PC Magazine.

Smaato Inc. (2009, June). *Mobile Advertising Optimization*. Retrieved March 15, 2011, from Smaato: <http://www.smaato.com/downloads>

Smaato Inc. (2010, August). *The Mobile Advertising Ecosystem*. Retrieved March 15, 2011, from Smaato: <http://www.smaato.com/downloads>

Smaato Inc. (2010, November). *The USmA: The United States of Mobile Advertising*. Retrieved February 28, 2011, from Smaato: <http://www.smaato.com/whitepaper>

Spriensma, G. (2011, April 27). *THE BATTLE FOR THE MOST CONTENT AND THE EMERGING TABLET MARKET*. Retrieved May 1, 2011, from Distimo: http://www.distimo.com/blog/2011_04_the-battle-for-the-most-content-and-the-emerging-tablet-market/

The Nielsen Company. (2011, January 5). *Factsheet: The U.S. Media Universe*. Retrieved March 15, 2011, from Nielsenwire: http://blog.nielsen.com/nielsenwire/online_mobile/factsheet-the-u-s-media-universe/

The Nielsen Company. (2010, December 1). *U.S. Smartphone Battle Heats Up: Which is the "Most Desired" Operating System?* Retrieved May 1, 2011, from Nielsenwire: http://blog.nielsen.com/nielsenwire/online_mobile/us-smartphone-battle-heats-up/

The Nielsen Company. (2011, April 26). *U.S. Smartphone Market: Who's the Most Wanted?* . Retrieved May 1, 2011, from Nielsenwire: <http://blog.nielsen.com/nielsenwire/?p=27418>

The Nielsen Company. (2011, March 3). *Who is Winning the U.S. Smartphone Battle?* Retrieved March 15, 2011, from Nielsenwire:

http://blog.nielsen.com/nielsenwire/online_mobile/who-is-winning-the-u-s-smartphone-battle/

Tsirulnik, G. (2011, January 6). *Apps getting more face time than mobile Web browser: study*. Retrieved March 15, 2011, from Mobile Marketer:

<http://www.mobilemarketer.com/cms/news/research/8689.html>

Tsirulnik, G. (2011, January 24). *Mobile app revenue to reach \$25B in 2015: study*. Retrieved April 13, 2011, from Mobile Marketer:

<http://www.mobilemarketer.com/cms/news/research/8857.html>

Tsirulnik, G. (2011, February 2011). *Volvo mobile ad campaign results in 88pc increase in purchase intent*. Retrieved April 15th, 2011, from Mobile Marketer:

<http://www.mobilemarketer.com/cms/news/advertising/8937.html>

Tsirulnik, G. (2011, January 25). *Where do Google AdMob's 2B daily ad requests come from?* Retrieved April 21, 2011, from Mobile Marketer:

<http://www.mobilemarketer.com/cms/news/ad-networks/8876.html>

Zokem. (2011, January 18). *IN THE US MARKET, IPHONE OUTPERFORMS OTHER MOBILE PLATFORMS IN USER LOYALTY BY A WIDE MARGIN, ANDROID IS SECOND, BLACKBERRY FOURTH*. Retrieved April 15, 2011, from Zokem: <http://www.zokem.com/2011/01/in-the-us-market-iphone-outperforms-other-mobile-platforms-in-user-loyalty-by-a-wide-margin-android-is-second-blackberry-fourth/>

Zokem. (2010, December 31). *MOBILE WEB AND APPLICATION USAGE GOES UP IN THE EVENINGS, BUT COMMUNICATION SERVICES FALL*. Retrieved April 4, 2011, from Zokem:

<http://www.zokem.com/2010/12/mobile-web-and-application-usage-goes-up-in-the-evenings-but-communication-services-fall/>