

USING PASSIVE MEASUREMENT TO DESCRIBE READING APP BEHAVIORS IN A RICH MEDIA MOBILE ENVIRONMENT

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Introduction

The movement of content traditionally consumed in print form – magazines, newspapers and books – into digital form began a number of years ago as print content providers began establishing their presence on the world wide web. The ability to supplement this traditional print content on the web with rich media such as audio, video and animations has changed the world for both traditional content providers as well as their readers.

More recently, a similar evolution has occurred in the relationship between traditional print providers and mobile devices. Starting as an initiative where major sellers of traditional print materials began offering dedicated mobile reading platforms such as Amazon's original Kindle or Barnes and Noble's Nook, the distribution channel for print-turned-digital materials has quickly morphed into new, more flexible forms such as Amazon's Kindle Fire mobile device as well as the emergence of mobile reading applications such as the Kindle app for the Apple iPad as well as for Android-based tablets.

One of the changes in this evolutionary process from dedicated mobile readers such as the original Kindle to newer mobile devices such as Apple's iPad is the fact that the reader's environment has now changed in important ways. For example, the Kindle application on a mobile device such as an iPad now directly competes for the user's attention with other activities on the mobile device such as web surfing, playing games and watching video content such as movies, television shows and music videos. This leads to new and important questions about how the readers and readership behavior changes in this new mobile environment.

Little is known about how this shift in the environment for viewing digital reading content may affect the reach, frequency or time spent reading digital content. In fact, there is a paucity of data and consequently understanding about even some of the most basic behaviors and activities surrounding people using reading apps on mobile devices. This paper endeavors to provide some elementary information about people who utilize a reading application on mobile device – specifically details about the use of Amazon's Kindle mobile application - in an effort to provide some initial empirical evidence that may be useful to both content providers as well as mobile platform advertisers.

Data Utilized in this Research

The primary data utilized in this research comes from Experian Simmons' new digital platform research study just recently launched in the United States. The SimmonsConnect study is a multi-platform study that utilizes passive measurement applications on personal computers and mobile devices to learn more about how consumers are using these devices. The particular focus in this paper is on the mobile data collected through this initiative.

The SimmonsConnect study is primarily a recontact study of households who previously participated in the National Consumer Study. Respondents who agree to participate in the study are eligible to participate in up to three panels – one panel each for smartphone, tablet and personal computer. Passive measurement applications are installed by the respondents on these platforms as part of participating in the study. The personal computer application records a date and time stamped record of the full URL for any website visited on that computer. Because in some households computers are shared among household members, a timed prompt appears from time to time that requests the current computer user identify themselves by checking a box next to their name. Users who are not part of the study can check a non-participating user box.

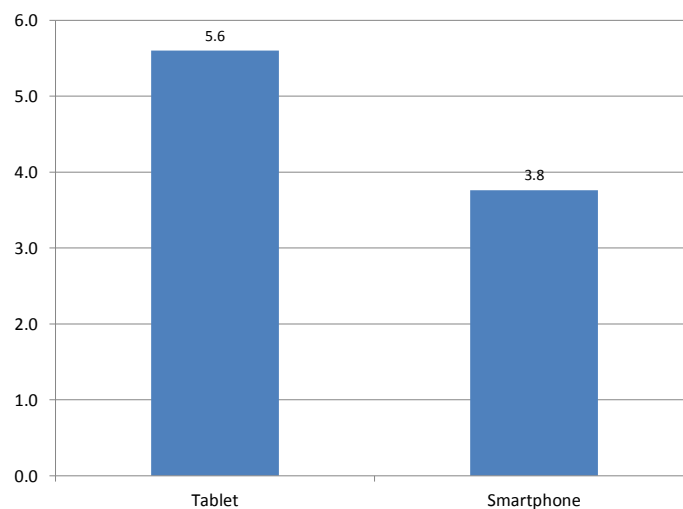
Mobile platforms represented include iOS, Android and Blackberry for smartphones, iOS and Android for tablets, including Kindle Fire tablets. The date and time stamped metrics that are captured by these devices include but are not limited to application opens, duration for each application used, number of text messages and phone calls, complete URLs for websites visited using the native browsers on the mobile device, complete geolocation information in terms of latitude and longitude and much more. There are approximately 1,660 total smartphones and tablets deployed in the study. The distribution of operating systems for smartphone devices was 55.3% Android, 42.3% iOS and 2.4% RIM (Blackberry). The distribution of tablet operating systems was 27.2% Android and 72.8% iOS. Note that a very small percentage of devices in the smartphone panel were actually iPod Touches and that 9% of the tablets were in fact Kindle Fires.

Once the data is collected, it is integrated and modeled to the remainder of the eligible National Consumer Study adult (aged 18 years of age or older) respondents by device and platform type. The data in this paper comes specifically from the SimmonsConnect Winter 2013 Study.

Reach, Frequency and Time Spent Metrics for Amazon Kindle App

The basics of media metrics apply not just to traditional forms of media such as television but also to new forms such as mobile media. First off we examine simple 30 day reach metrics to see what percentage of the U.S. population is reached by the Amazon Kindle application. In Figure 1 below we see the 30 day reach figures for both tablets and smartphones. As one might expect, people favor the larger screen format for reading with 5.6% of the U.S. population being reached by the Kindle application in 30 days versus 3.8 percent of smartphone users.

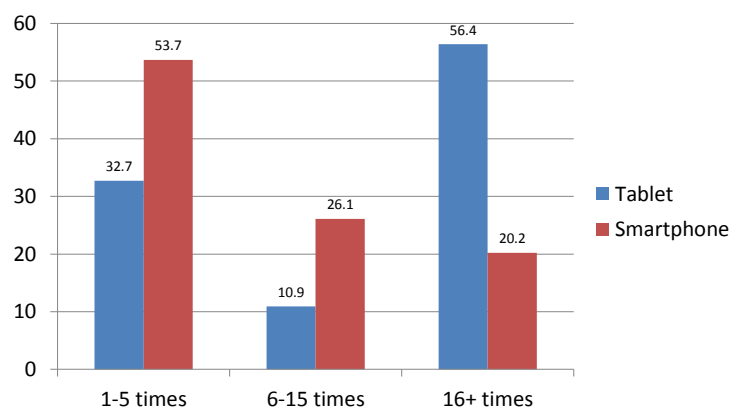
Figure 1
30 Day Reach for Kindle Application for Tablet and Smartphone



Surprisingly however, more people than one might think brave the smaller screen of their smartphone when using the Kindle application. This may be partially a function of lower incidence of tablet ownership than smartphone ownership in the U.S. or it might also be due in part to the fact that these are mobile devices and that the smaller form factor of the smartphone lends itself more to use on the go.

Next up is the frequency of use of the Kindle app in the last 30 days. Again we would expect, given form factors, that the tablet would have a higher frequency of use than the smartphone for this type of application.

Figure 2
30 Day Frequencies for Kindle Application for Tablet and Smartphone

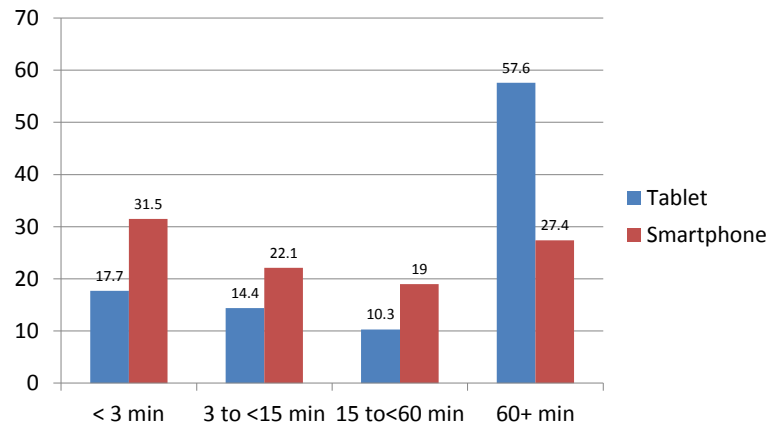


As suspected, in Figure 2 we see that tablets have higher frequency of use for the Kindle application in the last 30 days than smartphones. It is especially telling for the highest frequency of 16+ times in last 30 days where 56.4% of the tablet respondents report 16+ times in the past 30 days while only 20.2% report using the Kindle application frequently with their smartphone.

We again should expect the same pattern to repeat itself for time spent on mobile devices over the last 30 days with the Kindle application. In Figure 3 we find evidence for that trend. People who use the Kindle application on their tablets on average have much higher levels of time spent than those who use it on their smartphones. Note that 57.6% of the tablet

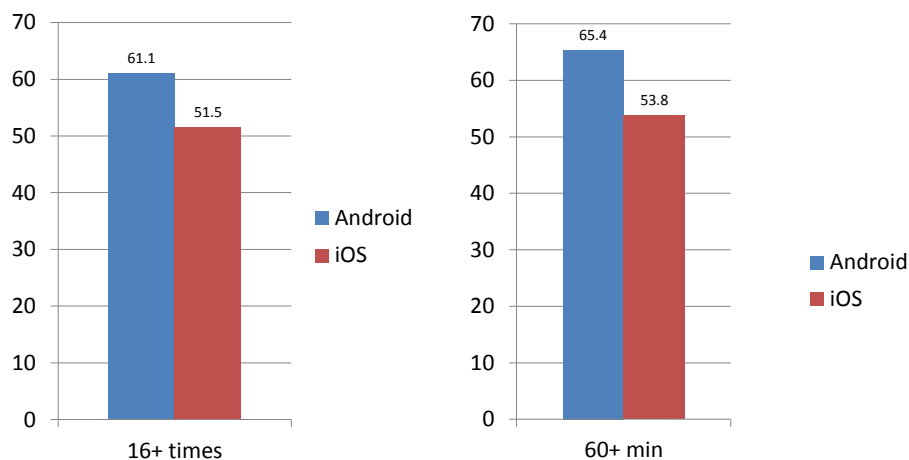
users used the Kindle application over 60 minutes in the last 30 days while only 27.4% of smartphone users stuck it out using their smartphones.

Figure 3
30 Day Time Spent for Kindle Application for Tablet and Smartphone



What about operating systems? The two top competing operating systems on tablets are Android and iOS. Are there any differences in high usage of the Kindle application between these two operating system platforms?

Figure 4
Android Versus iOS Tablet Top Box Frequency and Time Spent Last 30 Days

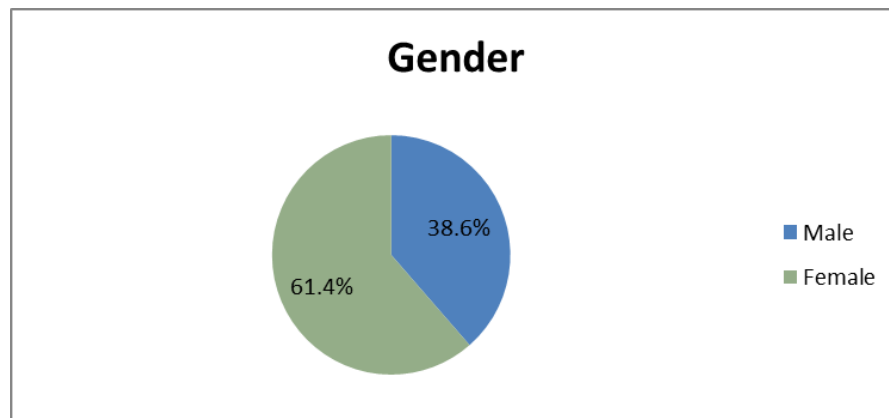


Surprisingly, from Figure 4 it appears that Android-based tablet users appear to have larger incidence in both the top frequency and top time spent metrics. It's unclear why this might be the case. If you look at ebook usage between the two platforms for these Kindle app users, 45.5% of the iOS respondents read ebooks while only 40.8% of Android Kindle app users read them. However, these Android Kindle app users also read more books in print (54.3%) than do iOS platform Kindle users (31.1%). Perhaps Android tablet users who use the Kindle app are more engaged in reading than the iOS group. Further research is needed here to provide a more satisfactory explanation for this result.

Demographic Profile of Kindle App Users

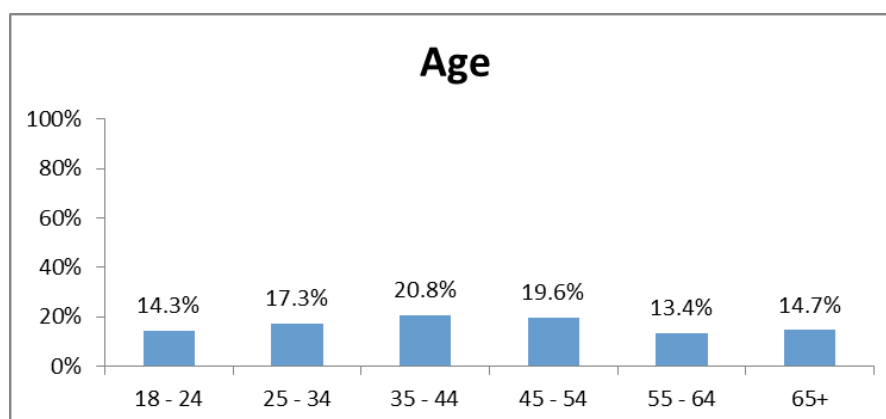
The next step in our investigation is to examine demographic profiles of people who used the Kindle App on their tablet or smartphone in the last 30 days. As one might expect, Kindle application users are more likely to be female (61.4%) than male (38.6%) as seen in Figure 5. The data show that females slightly over-index (index=119) while males under-index (index=80)¹.

Figure 5
Gender Profile for Kindle Application
for Tablet and Smartphone



The age distribution of Kindle application users is also of interest here. In Figure 6 below, it can be seen that the largest group of Kindle app users is aged 35-44 years old (20.8%; index =120) and the smallest group is the 55-64 group (13.4%; index=82). While the youngest group is only 14.3% of the Kindle app users, they index at 119 compared to the composition of the U.S. population.

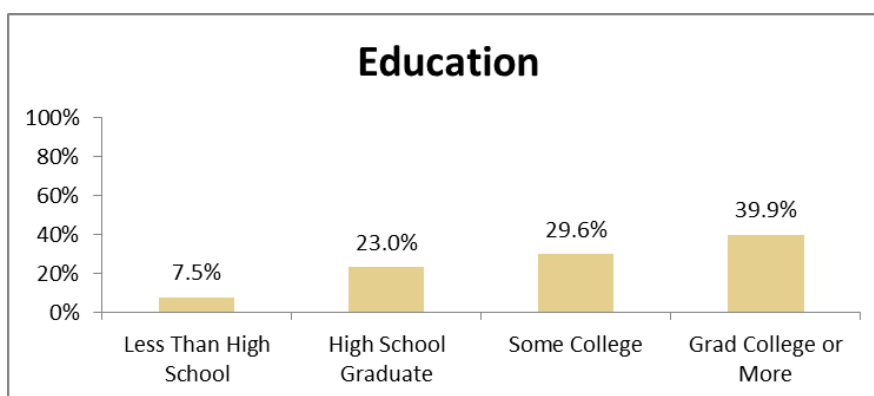
Figure 6
Age Profile for Kindle Application
for Tablet and Smartphone



¹ Unless otherwise stated, all indices are based against the total U.S. adult population.

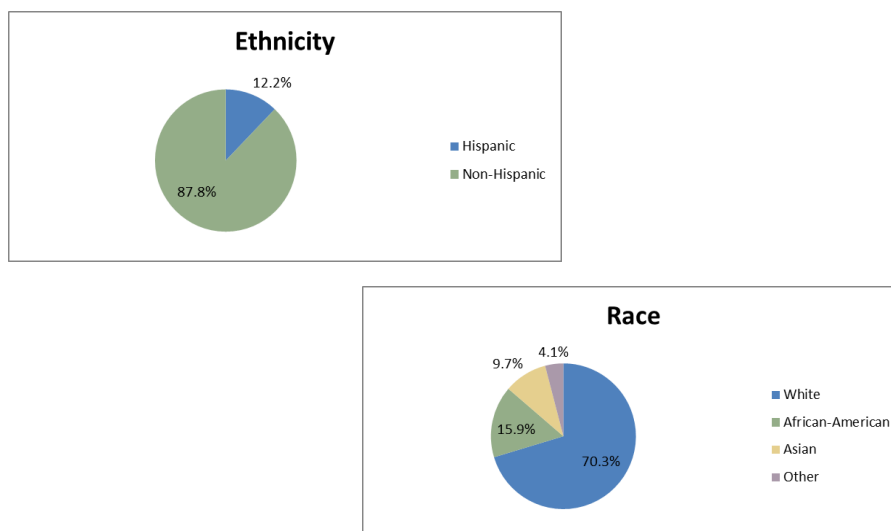
The educational profile of Kindle app users also appears as expected. In Figure 7 below, there is a clear upward trend for education and using the Kindle app. To some extent this is likely a function of tablet ownership because of the positive relationship between tablet ownership and education. However, it is still useful to see that almost 40% of the Kindle app users are college graduates, indexing at 143 to college graduates in the U.S. population.

Figure 7
Educational Attainment Profile for Kindle Application
for Tablet and Smartphone



One final set of demographics worth looking at are race and Hispanic ethnicity. In Figure 8 below it can be seen that 12.2% of the Kindle application users are Hispanic and they under-index against the Hispanic population estimates as a whole (index=80).

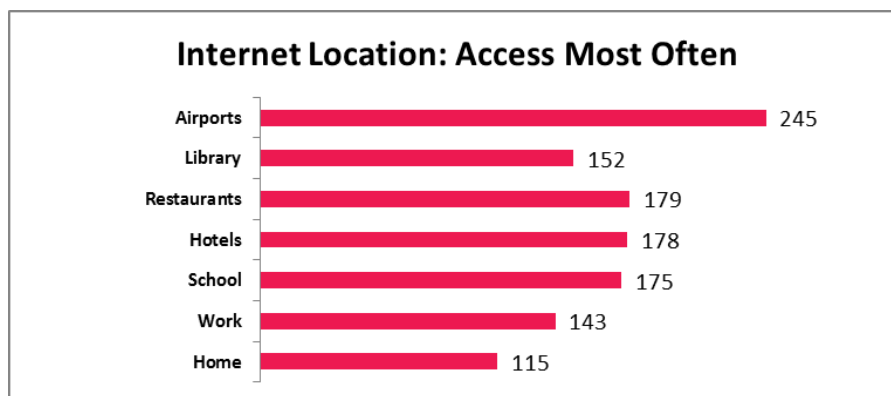
Figure 8
Race and Ethnicity Profile for Kindle Application
for Tablet and Smartphone



In the companion chart, while Whites are 70.3% of Kindle app users, they slightly under index (index=93). Surprisingly, African Americans are 15.9% of Kindle app users and over-index against the general African American population (index=132). Perhaps one reason for this may be that the Kindle may bring reading materials to African Americans who might not have easy access to a public library. Asians make up 9.7% of Kindle app users and significantly over-index against the U.S. Asian population at an index of 193. This interesting distribution of Kindle app use across the various ethnic and racial groups suggests that perhaps there is more than meets the eye in a demographic sense when it comes to reading on mobile devices.

The nature of smartphones and tablets are that they are mobile devices. People take them with them to work, to school, on vacation and on business trips. Give the mobile nature of these devices, we should see fairly high indices for accessing the Internet outside the home for Kindle app users.

Figure 9
Internet Venue Index for Kindle Application
for Tablet and Smartphone

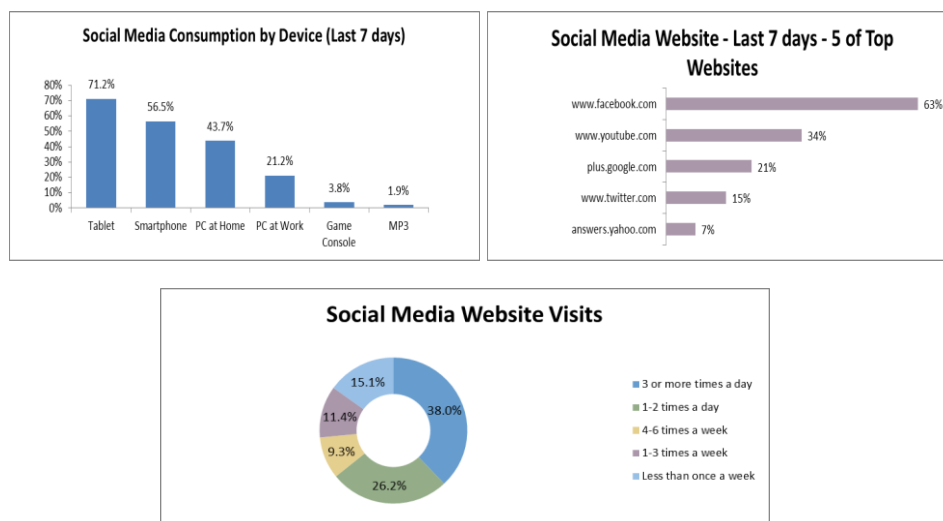


As can be seen in Figure 9 above, Kindle app users index quite high for travel sites such as airports, restaurants, and hotels when compared to where other U.S. adults access the Internet. Travel often involves long periods of waiting in airports, on airplanes and in hotel rooms and so having a reading application like the Kindle app available would seem like a positive benefit for travelers.

Digital and Social Media Behaviors of Kindle App Users

As one might expect and can be seen in Figure 10, Kindle app users are more likely tablet users and so the platform of choice for social media for these users is the tablet, with 71.2% of Kindle app users using social media within the last 7 days. The next most popular social media platform for the Kindle group is the smartphone, with 56.5% using social media in the last 7 days, followed by pc at home with 43.7% of the Kindle app users using their home pc for social media. The fact that the top two environments for social media for Kindle app users suggests that when presented with the opportunity to use social media they prefer to do so on mobile devices.

Figure 10
Social Media Platform for Kindle App Users

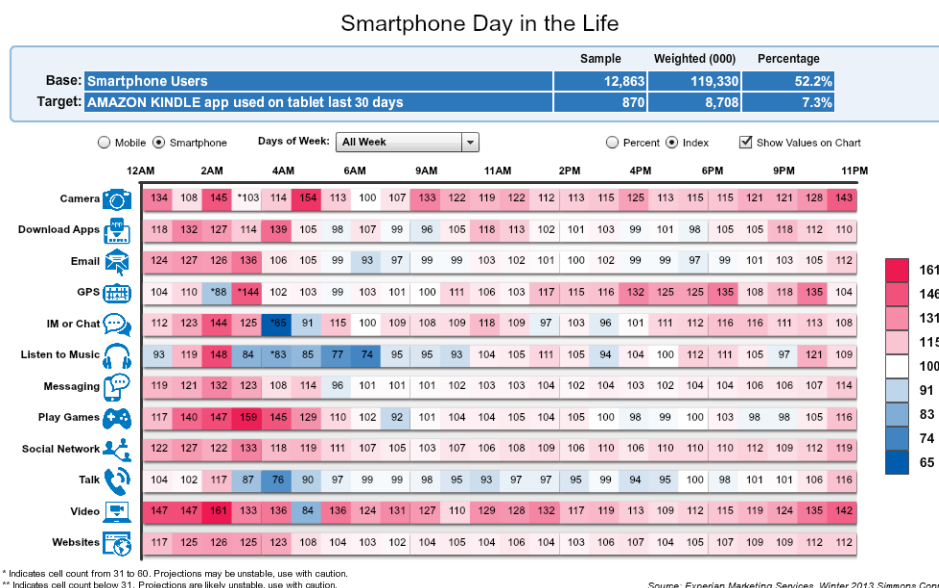


The social media websites that the Kindle app users have visited in the last 7 days are facebook.com (63%), YouTube.com (34%), plus.google.com (21%) and twitter.com (15%). These Kindle app users are also fairly active social media users with 38% of them using social media websites 3 or more times a day and another 26.2% of them using them 1-2 times a day.

Most tablet users are also smartphone owners as well. It would be useful to see how Kindle tablet app users compare, in terms of smartphone activities, to the smartphone user base as a whole. It would also be useful to be able to see this comparison during different times during the day. Are Kindle tablet app users more prone to certain smartphone activities during different parts of the day? Because the mobile panel data that is collected is date and time stamped, it is possible to carry out this kind of complex analysis.

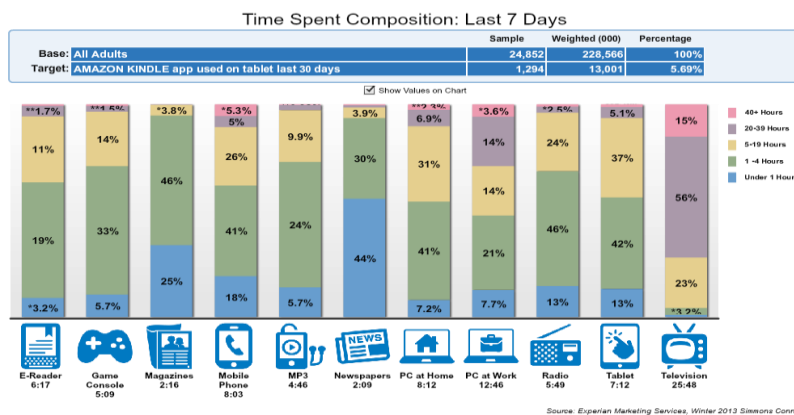
One of the first things to notice in Figure 11 is that compared to smartphone users in general, tablet Kindle app users are somewhat of might be called “nightowls” for some types of smartphone activity. Notice that many of the over-indexing smartphone activities occur during the late night and very early morning hours.

Figure 11
Smartphone Behaviors by Daypart for Kindle Tablet App Users



Another interesting result is that tablet Kindle app users also seem to be more visually focused than the overall smartphone population as can be seen by the larger indices using their smartphone camera and video features. It also looks like some of the social networking that occurs on smartphones of these tablet Kindle app users occurs during the wee hours of the night and morning. This day in the life kind of analysis can be useful in determining when to target specific audiences and through what smartphone channels will help reach the most individuals at those specific times.

Figure 12
Platform Time Spent for Kindle Tablet App Users

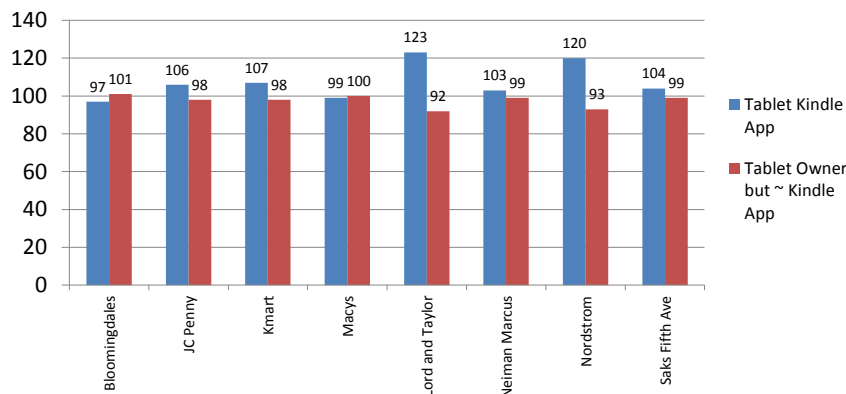


Staying with our Kindle tablet app user target, we profile how they spend their time across a number of media platforms. Figure 12 above reveals for example that these tablet Kindle app users on average spend about 25 hours per week consuming television content, 7 hours a week with their tablets, 8 hours per week with their mobile phone, 2 hours a week with magazines and 2 hours a week on newspapers. One can also compare this target group's media consumption against the U.S. population for traditional print media. For example, 44% of the target group spends less than 1 hour per week reading a newspaper (index=129) and 46% of the group spend 1-4 hours per week reading magazines (index=117).

Several Consumer-based Examples

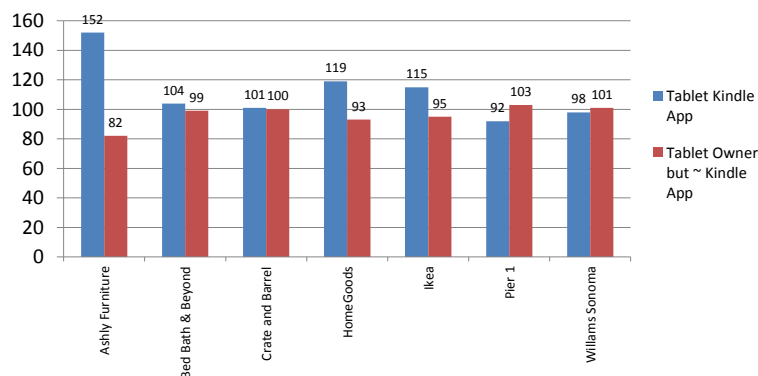
The preceding discussions have focused on describing in a number of ways people who use the Kindle mobile application. One of the questions that has not yet been answered is, do activities like using a specific mobile application discriminate among consumer activities? In Figure 13 below we compare tablet users who have or have not used the Kindle app in the last 30 days and having shopped at these department stores in the last 3 months.

Figure 13
Tablet Kindle App Use by Dept Store Shopped Last 3 Months



In terms of using or not using the Kindle app on a tablet, some of the department stores such as Bloomingdales, Macys, Neiman Marcus and Saks Fifth Avenue show little difference between the two groups of tablet users. On the other hand, there are non-trivial differences for Lord and Taylor and Nordstrom in terms of the shopping behaviors of these two groups. It is interesting that both groups have high end department stores/shops in them. One cannot say that this is some simple upscale/discount dichotomy that distinguishes the lower and higher indexing groups. Further investigation may find a more suitable answer to this question.

Figure 14
Tablet Kindle App Use by Home Furnishings Store Shopped Last 3 Months



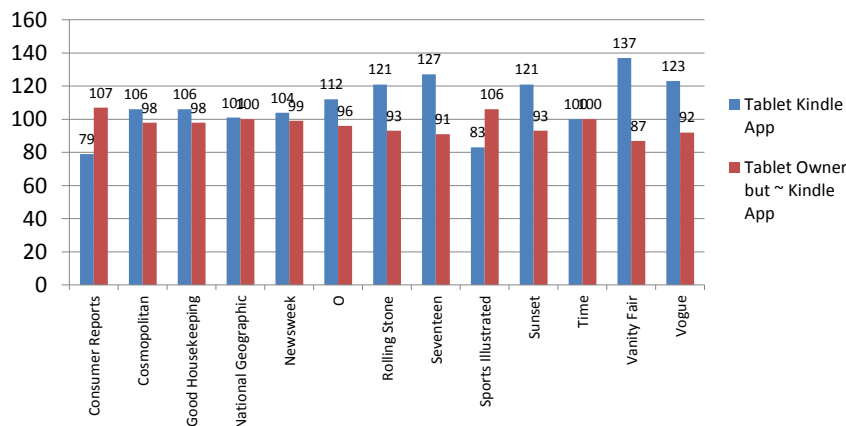
Another analysis can be made for home furnishing store shoppers. Again we split the tablet users into Kindle or non-Kindle app user groups (accessed Kindle app on tablet last 30 days) and examine the incidence of their shopping at a number of popular furniture and home furnishing stores.

In the example in Figure 14 above, there is one store – Ashley Furniture – where there is a dramatic difference between the tablet users who used the Kindle app versus those who did not in the last 30 days. Inspection of tablet ownership and gender does not show Ashley as having more of a female shopping clientele or higher tablet ownership than some of its competitors. A visit to the Ashley Furniture website did reveal that this brand received the 2013 Women's Choice Award as "America's Best Home Furniture Retailer" but other than that nothing stood out as potentially being associated with this result. Finally, note that there are modest positive differences for the stores HomeGoods and Ikea for the Kindle app group and that most of the rest of the stores are reasonably flat – with the exception perhaps of Pier 1.

Use of Kindle App on Tablet and Magazine Readership

There are a number of ways in which readers can access digital, mobile magazine content and using the Kindle application is just one of those ways. Therefore, it can be difficult to directly examine the relationship between using the Kindle app and reading specific magazines but if there is a relationship between Kindle app use and magazine readership it may be possible to uncover that for some perhaps some magazines². Figure 15 shows indices magazines read or looked into in the past 6 months for tablet users who used as well as did not use the tablet Kindle app in the last 30 days.

Figure 15
Indices for Magazine Readership Against Kindle Tablet App Use
(Magazine Read or Looked Into Last 6 Months)



We can see that six magazines – O, Rolling Stone, Seventeen, Sunset, Vanity Fair and Vogue - show reasonably higher indices for those who used the Kindle tablet app than for those who did not. This may suggest that that these readers may be more inclined to use the Kindle application to access the digital content of these magazines. This is only a conjecture because there could be alternative explanations such as the fact that there may be some common thread or characteristic among readers of these magazines that encourages Kindle app usage.

Five of the magazines – Cosmopolitan, Good Housekeeping, National Geographic, Newsweek and Time – have either slightly positive or flat indices for Kindle tablet app usage. This may be because a larger number of the mobile readers are also utilizing other avenues such as Zinio to access the digital magazine content. Finally, there is Consumer Reports where the index for Kindle app users is 79 and for non-Kindle app users the index is 107. Checking the Amazon.com website within the subscription magazine webpages allowed us to verify that indeed subscriptions to a Kindle edition of Consumer Reports are offered by Amazon and readers purchasing the subscription would receive the digital content of that magazine via the Kindle app. It is unclear at present why Consumer Reports stands out in contrast to the other magazines but perhaps further investigation will reveal a plausible explanation.

Next Steps in the Research

During the course of research for this paper we have made some preliminary investigations into looking at the uses of the mobile Kindle application. In the last section we also took a quick look at the potential relationship between the Kindle app and magazines. Decomposing at a more detailed level the relationship between specific digital content such as magazines and mobile behaviors at the app level becomes more difficult as it becomes entangled in the “fog of war” between digital content providers and the mobile marketplace owners. One of the primary reasons for the presence of this digital “fog of war” in the arena of mobile readership is the heavy thirty percent tariff that application marketplaces such as Apple’s AppStore and Google’s Play Store collect for both application purchases as well as in-application purchases (Pontin, 2012).

This has forced most traditional print publishers to sell access in the form of subscriptions to their publications outside of these stores and then offer in-app-store applications for free to provide digital access to their content. Audiences and publishers are also utilizing a number of different strategies such as deploying independent companies such as Zinio³ to provide digital access or using secondary resellers such as Amazon.com to sell the subscription and then send the content to the Kindle application that we have been discussing in this paper.

As we did some additional analyses on the topic of the relationship between magazine readership and the use of the Kindle application we felt that the issues involved, especially considering the direct measurement such as the passive application

² See the next section for some reasons why there are so many different strategies to access mobile magazine content

³ See Bercovici, 2012 for a historical and current analysis of Zinio.

strategy we deploy in our research, are more complex and evolving as this paper is being written. We decided that the next logical step in our research is to pick a specific print/digital publication or set of publications and work at unraveling the various ways in which readers find their way to reading their publication using a mobile device. We think this will be an excellent topic for submission at the 2015 Print and Digital Research Conference.

Summary

The purpose of this paper has been to provide some basic fundamental information about people who read digital content on their mobile devices utilizing a specific mobile application - the mobile Kindle app. There is a lack of knowledge about simple metrics for specific reading applications such as the Kindle app, including reach, frequency and time spent with the application. In this paper we discuss how information gathered from using a passive measurement application and integrated and modeled into a large national syndicated consumer data set can help provide a more detailed profile of who these individuals are from both mobile behavior and consumer marketplace perspectives. The ability to link as well as model this wealth of mobile data into a large, syndicated consumer database such as the National Consumer Study provides researchers with an unprecedented look into the attitudes and behaviors of these mobile consumers. As we collect more data we hope to contribute more to the understanding of how mobile devices fit into the consumer marketplace and how digital content as well as digital advertising fits into this schema.

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