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TV and the iPad: How the Tablet is Redefining the Way We Watch

Stephen P. McCreery and Dean M. Krugman

The tablet computer offers options for streaming TV programming that potentially alters viewing behaviors compared to the traditional television set, yet there is a dearth of research related to this viewing alternative. This study uses a national sample of adult iPad owners to investigate the tablet's role as a TV. The frameworks of continuity-discontinuity, use-diffusion, and attention and absorption to programming are applied to uncover where the tablet fits into the current repertoire of viewing devices, and how individuals are engaging with traditional TV programming through it. Results show that overall, the tablet's functionality as a TV can lead to experiential differences.

Options for watching TV shows and movies have increased greatly since the arrival of video streaming technology and the willingness by television networks to offer much of their TV originated content through these online platforms. The change in platforms gives rise to newer forms of video consumption that potentially alter viewing. The current study focuses on tablet viewing, one of the most rapidly growing video streaming areas.

In the United States, the average monthly time spent watching video on the Internet is 6 hours and 41 minutes, an increase of 43 minutes from 1 year earlier (Nielsen, 2013). While this figure seems dwarfed by comparison to traditional television watching (147 hours each month, flat from 1 year earlier), there is undoubtedly a growing trend among consumers to choose the Internet for watching video. Younger people are more apt to view. While 15% of U.S. online adults watch at least 4 hours of TV online per week, that number grows to 24% and 32% for Generation Y and Z viewers, respectively (Forrester, 2013).

Among these alternative platforms is the tablet computer, the first of which was the iPad, introduced by Apple in 2010. Approximately 42% of all Americans adults own a tablet (Pew, 2014), and spend an average of 8 hours per week with it (''Most Wanted,'' 2014). When wirelessly connected to the Internet, the tablet can

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Journal of Broadcasting & Electronic Media 59(4), 2015, pp. 620–639
DOI: 10.1080/08838151.2015.1093483 *ISSN: 0883-8151 print/1550-6878 online*

be transformed into the first truly portable TV. With a screen considerably larger than a smartphone, but smaller than a standard laptop computer, the tablet can satisfy both ease of viewing and the ability to do so wherever one can connect to the Internet, when a traditional television is not accessible, or when a more personal viewing experience might be warranted. The tablet is also often seen as a secondary, more browsing oriented screen when watching the television (Castillo, 2013). Nevertheless, tablet TV viewing is a dynamic and growing advancement in the evolution of the television, particularly when considering the multitude of online viewing options available for streaming.

We investigate TV viewing on the tablet computer by focusing on the way programming is consumed, how tablets compare with other ways of viewing, and levels of attention and absorption compared to the traditional method of watching—on a television set.

Literature Review

Several factors can help explain viewing as newer forms of media enter the market. The following addresses three of the most salient factors–continuity and discontinuity of video product use, use-diffusion (UD), and attention/absorption to content. We discuss these factors as they relate to tablet and television viewing and then establish research questions.

Continuity-Discontinuity

The movement from continuous to dynamically continuous to discontinuous products was initially introduced by Robertson (1971) in the context of innovative communication behavior, and further developed for television and new media audiences (Krugman, 1985). Some products and services may only slightly change existing use patterns. When cable television first entered, it was termed a continuous change, since viewers, while having more selection, did not really alter their viewing behavior to a great degree. However, other products and services require more dramatic changes on the part of the audience. For example, DVR adoption was termed dynamically continuous because it created a customizable viewing environment in which the individual was at times transformed from a passive receiver to a proactive decision maker (Smith & Krugman, 2010). The above concept is important because when technology leads to consumption changes, our existing knowledge of viewing needs modification. Therefore, when approaching programming found on tablets, there is a need to consider what viewing changes, if any, take place.

Use-Diffusion

While degree of technology use is an important variable that describes the extent of an innovation's diffusion (Robertson & Gatignon, 1986), it is also important to

understand ''how'' a piece of technology is used in order to determine collective influence (Hamblin, Miller, & Saxton, 1979). Adoption-diffusion primarily focuses on the time and number of adopters, while use-diffusion addresses the theoretical questions concerning post-adoption use behaviors.

In 2004, Shih and Venkatesh developed a comprehensive working use-diffusion (UD) model, which they then applied to the home computer. Their model differed from older adoption-diffusion models in several ways: Instead of identifying the variables time and rate of adoption, the use-diffusion model is more concerned with how one's use of an innovation evolves over time; and while adoption suggests a typology of adopters from innovators to laggards, their UD model uses ''variety'' and ''rate'' to examine how new technologies are used. Variety constitutes the different ways a product is used, while rate of use is the time a person spends with the product over a designated period. This allows for a two-by-two typology of four post-adoption user patterns, each with different implications for the way the technology is used: 1) *Intense Use* involves a high degree of different uses at a high rate. Intense use can result in a cultural anchor that becomes an important part of how people live on a daily basis; 2) *Specialized Use* involves a high rate but low variety of use. In many cases, use becomes routine; 3) *Non-Specialized Use* involves highly varied but infrequent use, where variety is more important than usage rate and consumers often select specific features by trial and error; and 4) *Limited Use* involves of both low variety and rate, which often results in dis-adoption.

The UD model has been successfully applied to television and associated products. For large screen televisions, users were principally divided between intense and limited use (McNiven, 2008), whereas primary DVR users where characterized as intense (high variety and rate), and secondary users as more limited (low variety and rate) (Smith, 2005). Understanding tablet use through the UD lens will help establish the kinds of patterns that are developing and the role of tablets in everyday life.

Attention and Absorption

A rich history of research using a variety of methods examines the concept of visual attention to traditional programming and/or advertising (Abernethy, 1991; Allen, 1965, Anderson, Lorch, Field, Collins, & Nathan, 1986; Bechtel, Achelpohl, & Akins, 1972; Collet & Lamb, 1986; Krugman, Cameron, & White, 1995; Steiner, 1966). A basic assumption is that attention serves as a proxy for cognition and processing. Studies have found a positive relationship between viewing attention and cognitive measures such as recognition or recall (Detenber & Reeves, 1996; Lloyd & Clancy, 1991; Lombard, Ditton, Grabe, & Reich, 1997; Reeves, Lang, Kim, & Tatar, 1999; Thorson, Friestad, & Zhoa, 1987). Closer viewing indicates greater connection and processing. Attention to television has been measured using a number of different methods including experiments (Lloyd & Clancy, 1991; Thorson et al., 1987), observations (Krugman et al., 1995; Krugman & Johnson, 1991; Steiner, 1966), or self-reported surveys (McNiven, Krugman, & Tinkham, 2012). Moreover,

activities increasing or diminishing television attention, investigated using in-home observations, were triangulated with survey data (Krugman & Johnson, 1991).

Multiple factors contribute to the overall effect of a viewer's attention to TV content. The size of a video screen and the subject-to-screen viewing distance can have a positive effect on a viewer's attention and absorption with, and arousal to, programming (Lombard et al., 1997; McNiven et al., 2012; Reeves et al., 1999). While a television screen is physically larger than a tablet screen, the distance one watches is generally much closer with the smaller screen, creating a viewing area that often takes up a larger field of vision. This closeness and larger relative screen size may create higher levels of arousal (Lombard et al., 1997; Reeves et al., 1999) and a more intense viewing experience that will be remembered better (Reeves & Nass, 1996). These concepts can be linked to presence, or the feeling of the viewing experience as not being mediated (Lombard et al., 1997).

An extension of attention is the concept of ''absorption,'' which signifies greater connection with the content being viewed. Almost from inception, scholars have noted that television has an ''absorbing'' quality, in which the viewer is immersed in the program (Schramm, 1961). Absorption has been measured via surveys (McNiven et al., 2012) and experiments (Lombard et al., 1997). McNiven and colleagues (2012) found that large-screen viewers paid more attention and were more absorbed in TV programs on larger television screens (over 40 inches) compared to watching on smaller screens. Moreover, absorption was found to be a mediating factor for attention.

Whether the tablet viewing experience is considered the same as watching on a television in terms of attention and absorption needs to be examined. How people engage with programming on the tablet, and how, if at all, tablets change the nature of watching, are relevant to understanding if viewing is changing.

Research Questions

Other new media technologies have demonstrated the capacity to alter viewing in ways that using these products allows consumers to move beyond continuous consumption—where changes in watching are minimal—to dynamically continuous or discontinuous consumption. In the latter two, viewing change is much more profound in terms of the way content is consumed. Because tablets enable viewers to have a potentially different viewing process, it is important to understand if and how tablet viewing varies from that of traditional television and other screened devices.

RQ_1: Where does the tablet fit into the viewing process compared to the traditional television and other screened devices?

The use-diffusion model (UD) explains how consumers, in terms of both rate and variety of usage, employ technologies. The UD approach provides an understand-

ing of technology use patterns in daily life. UD has been successfully applied to other media technologies such as the large screen television and DVRs in terms of understanding use patterns. In applying the UD model to tablet usage we ask:

RQ_2: What is the proportion of tablet viewing in terms of intense, specialized, non-specialized and limited use?

The tablet as a TV-viewing device has the potential to alter the viewing experience on several levels: The screen becomes closer, thus potentially making it more personal; the portable nature of the tablet means that TV has become more mobile than ever before; and the on-demand nature of online streaming allows for content to be viewed virtually anytime, using a variety of human-to-computer interactive processes. In considering these factors that contribute to the tablet's role as portable TV, we ask:

RQ_3: If at all, how does watching TV on the iPad change the viewing experience, compared to watching on a television?

Attention and absorption have been valuable in explaining traditional television viewing. Attention has often focused on cognition or factors related to how active the viewer is in processing the messages. Absorption is tied to how immersed the person is in the programming, potentially making the viewing process more intense. Therefore, we ask:

RQ_{4a}: Do iPad viewers report paying more attention to TV content than television viewers?

RQ_{4b}: Do viewers report watching TV on the iPad as a more absorbing experience?

Method

This study used an online survey instrument to evaluate consumers' levels of engagement with TV content on an iPad. The survey was comparative in nature, in order to test differences between iPad and television set viewing. Qualtrics, a U.S.-based global supplier of online data collection and analysis, was chosen to provide the panel of respondents for this survey, based on the company's reputation as a well-accepted panel provider in the field of academia.

Prior to the survey, four focus groups were conducted as part of a two-stage, sequential design for the purposes of development, thus using both qualitative and quantitative methods. Insights from the focus groups were used to help construct the survey instrument. Focus groups are useful as exploratory research prior to survey construction, have a particular value in areas that are technical or complex

(Goldman & McDonald, 1987), and can help develop hypotheses and survey items during the early stages of a survey's design (Barbour, 2008).

All focus group participants were at least 18 years old and owned an iPad. A total of 28 individuals participated in one of the four focus groups. Sixteen were female, and 12 were male. The median age was 22, and the mode was 21. Two of the groups were comprised of 18–24 year olds. Younger viewers of video and TV content such as these are more likely to stream via the Internet than older viewers (Nielsen, 2013). Discussion topics were based on the literature, research questions, and industry observations, and an iterative design process was used to allow information from each session to be incorporated into subsequent sessions, as deemed necessary.

For the survey, panel participants were pre-qualified based on two criteria—U.S. adults who own an iPad. While this research is tablet-centric, the iPad was chosen as the tablet of study in order to eliminate any inconsistencies that could exist between the various devices currently on the market

Included in the survey were items related to the iPad as a multi-media device, with an emphasis on TV viewing. Additionally, the iPad was compared to other screened devices, to evaluate the tablet's fit as a TV-delivery device. App usage and task behaviors were also evaluated.

A 10% soft launch to test the instrument ($n = 99$) was followed by the full launch. A total of 2,635 individuals began the survey, of which 1,126 completed as qualified panel participants. The average duration for the qualified sample was 19 minutes.

Results

Of the 1,126 respondents, 56.3% were female, and 43.7% were male. The majority (84.5%) was white. 58.9% were college educated. The median household income range was $50,001 to $75,000. The median age range was 30 to 39.

RQ_1: Where does the iPad fit into the viewing process compared to the traditional television and other screened devices?

To address this question, a multi-dimensional scaling cluster analysis of similarities between five screened devices—the iPad, smartphone, laptop computer, desktop computer, and television—was conducted on two levels. Implicit in similarities data is the ability to compare all pairs of objects (Hair, Anderson, & Tatham, 1987), which helps the researcher to uncover patterns of relationships between these devices that might otherwise be hidden in the empirical findings from the survey data. This lets the data be represented in a geometric space that allows for viewing distances between items in a way that is much more discernible to the human eye (Wilkes, 1977). For the exploratory nature of the study, these multidimensional scales were created using non-attribute-specific data.

Table 1
General Similarities Distances Between Five Screened Devices

	iPad	Smartphone	Laptop Computer	Desktop Computer	Television
iPad	.0	—	—	—	—
Smartphone	2.54	.0	—	—	—
Laptop Computer	3.47	4.35	.0	—	—
Desktop Computer	4.76	5.34	2.43	.0	—
Television	5.06	5.56	4.88	4.92	.0

First, each respondent was asked to make direct judgments of the general, overall similarities between the five devices, by comparing each one to the remaining four, on a 7-point Likert scale of "*very similar*" to "*very different,*" for a total of 10 similarities measurements. This set of items was then repeated with respondents evaluating these device similarities, but specific to watching TV shows or movies.

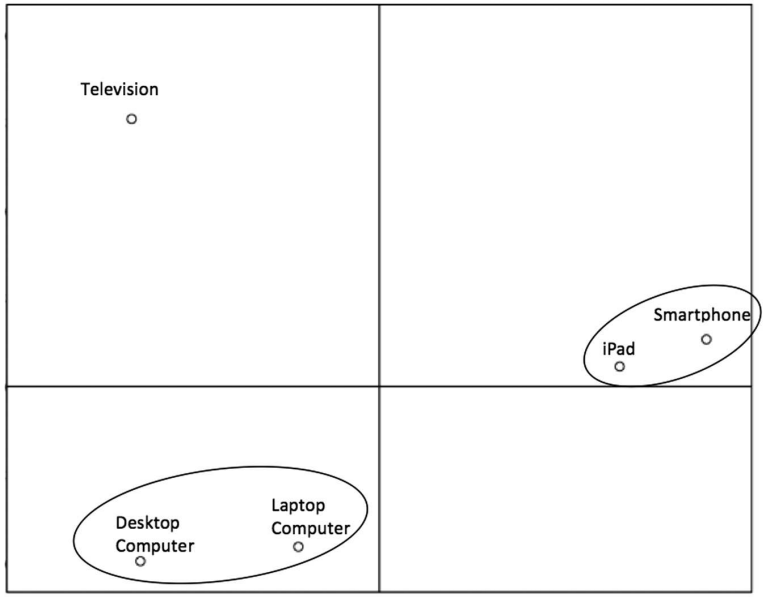
The results of these two procedures are first displayed in Tables 1 and 2 by showing the summed distance averages between each device, followed by Figures 1 and 2, which display these distances visually, plotted on two yet-undefined dimensions. In cases where two or more devices were physically close to each other, they are grouped by enclosing them inside an oval.

Initial results show that, on both scales, the television is completely isolated from the remaining four devices. This is quite sensible given that television is the one screen that is almost solely connected to consumption. In the general similarities scale, the desktop and laptop computers are plotted in close proximity to each other, as are the smartphone and iPad. The structure locates the devices based on their approximate screen sizes, whereby desktops and laptop are more similar, as are tablets and smartphones. The TV watching similarities comparison model reveals that the iPad has further distanced itself from the smartphone. It has moved closer

Table 2
TV & Movie Watching Similarities Distances Among Five Screened Devices

	iPad	Smartphone	Laptop Computer	Desktop Computer	Television
iPad	.0	—	—	—	—
Smartphone	3.03	.0	—	—	—
Laptop Computer	2.83	4.18	.0	—	—
Desktop Computer	3.53	4.88	2.41	.0	—
Television	4.10	5.08	3.82	3.79	.0

Figure 1
Multi-Dimensional Scaling Distance Model. General Similarities Between Five Screened Devices, on Undefined Dimensions



to the laptop, suggesting that when specifically watching programs on the iPad, it becomes less similar to a smartphone, and on some level, more like a laptop. The discussion section of the paper more fully explores the similarities and differences.

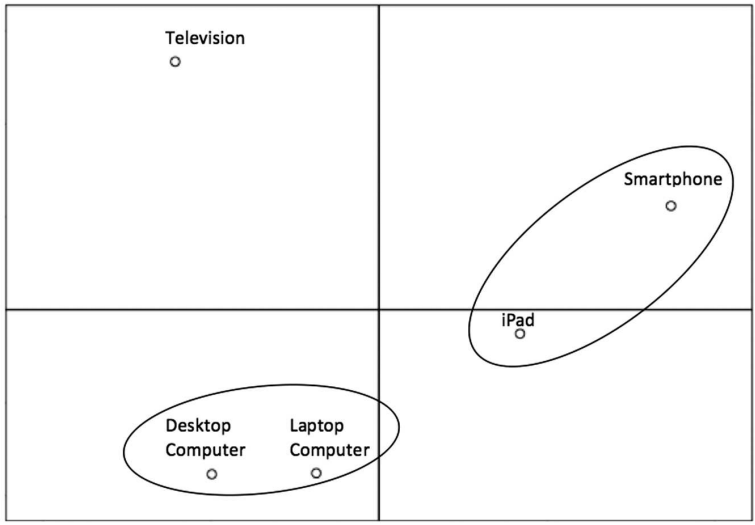
RQ_2: What is the proportion of tablet viewing in terms of intense, specialized, non-specialized, and limited use?

Shih and Venkatesh (2004) classified users into four categories—intense, specialized, non-specialized, and limited—using a 2 × 2 typology of rate versus variety. To measure these two constructs, respondents were asked, ''How often do you use an iPad for the following tasks?'' Results show that surfing the Internet had the highest rate of use, followed by e-mail, social media, watching short video clips, and reading news or sports. Slightly further down are watching TV shows, movies, and live sports. Table 3 shows the results of level of use for each task.

Rate of use was then measured by computing the mean Likert score for each individual, based on the overall rate of use for each of the 17 items, where 1 = *never*, and 5 = *a great deal*. The results were divided into two measures—high rate and low rate of use—by splitting the sample in half at a natural break in the data.

The next step was to evaluate the variety of iPad tasks by looking at how many different tasks each individual engaged in, regardless of how often that task was

Figure 2
Multi-Dimensional Scaling Distance Model. TV & Movie Watching Similarities Between Five Screened Devices, on Undefined Dimensions



carried out. Here, a score of two, three, four, or five indicated at least occasional use of a task. As with rate, the results were divided into two measures—high variety and low variety—by splitting the sample in half at a natural break in the data.

After both rate and variety levels were calculated, four new variables were created by combining low rate and low variety users into the variable ''limited use,'' low rate and high variety into ''non-specialized use,'' high rate and low variety into ''specialized use,'' and high rate and high variety into ''intense use,'' fitting with the Shih and Venkatesh typology of users according to their use-diffusion model. This model shows that ''intense'' users (42.0%), followed by ''limited'' users (40.4%), made up the majority of respondents. This closely matched the hierarchical order found in the Shih and Venkatesh model, where ''limited'' users (30.2%) and ''intense'' users (29.9%) also made up the majority of respondents. Results are shown below in Figure 3.

To analyze these individuals specific to viewing TV and movie related content, rate of use across three TV-viewing related tasks was measured by computing the mean Likert score for each individual, based on the overall rate of use for each of the three items—''watch TV,'' ''watch movies,'' and ''watch live sporting events.'' Again, 1 = *never*, and 5 = *a great deal*. The results were then divided into three measures—high rate, medium rate, and low rate of use—by splitting the sample into three roughly equal groups at natural breaks, allowing a clear polarization of both high and low rate respondents. An independent samples *t*-test was then conducted

Table 3
iPad Task Usage by Rate of Use (5 pt Likert Scale: Never → Great Deal)

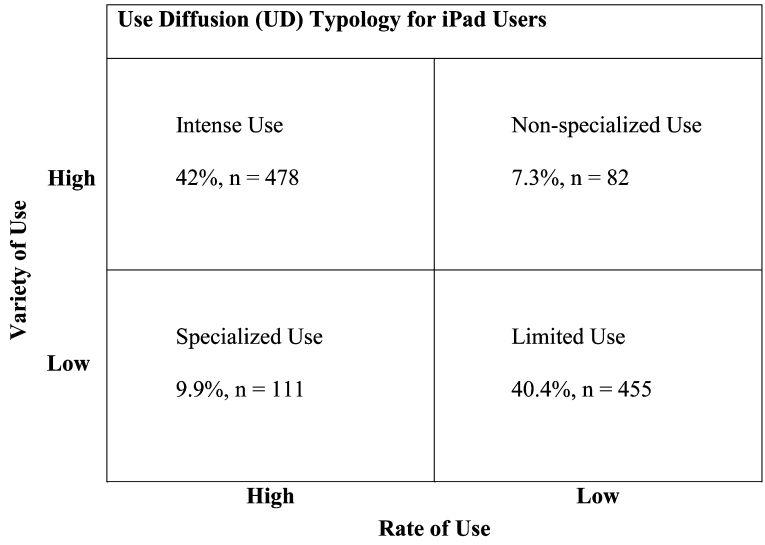
iPad Task	iPad Mean (SD)
Surfing the Internet	4.24 (0.93)
E-mail	4.00 (1.19)
Social media	3.91 (1.32)
Short video clips (YouTube, etc.)	3.73 (1.15)
Reading news or sport	3.50 (1.20)
Playing video games	3.49 (1.35)
Listening to music	3.41 (1.29)
E-commerce	3.37 (1.29)
Taking pictures	3.09 (1.39)
Reading books	2.98 (1.36)
Watching TV shows	2.88 (1.31)
Watching movies	2.81 (1.36)
Taking notes or creating documents	2.77 (1.33)
Reading work-related documents	2.55 (1.44)
Online document management	2.47 (1.38)
Watching live sports	2.06 (1.22)
As a remote for other devices	1.90 (1.25)

on multiple iPad-related measures, using the two polarized groups—high rate and low rate—and leaving out the middle third. Results show that high rate iPad viewers ($M = 2.94$, $SD = 1.10$) are younger than low rate viewers ($M = 4.00$, $SD = 1.47$), $t(808) = 11.2$, $p = .00$.

RQ_3: If at all, how does watching TV on the iPad change the viewing experience, compared to watching on a television?

A series of items that distinguishes watching on the iPad versus a television were examined. These include the ability to control the viewing schedule, the portability of the iPad, the personal experience offered through iPad viewing, and the on-demand capability that is part and parcel to the tablet watching experience. Each of these four items was computed into an overall iPad viewing experience scale by averaging their sums (Cronbach's $\alpha = .82$). The mean score for this scale ($M = 3.60$, $SD = 1.00$) suggests that individuals do choose the iPad to watch because the experience is different overall with respect to these distinguishing characteristics. A fifth item, ''I find that watching TV shows or movies on an iPad has changed the way I experience those programs overall, compared to watching on a television,'' was

Figure 3
Rate and Variety of Overall iPad Use



included to get an overall comparative assessment of the iPad viewing experience. The results of this item (M = 3.34, SD = 1.14) further reinforce these experiential differences. Mean scores for all individual items and the overall scale are reported below in Table 4.

To further evaluate experiential differences, an analysis of an open-ended follow up question was conducted. The question asks, "How has watching TV shows

Table 4
iPad Viewing Experience Items (5 pt Likert Scale: Strongly Disagree—Strongly Agree)

iPad Viewing Item	iPad Mean (SD)
Allows me to control my viewing schedule*	3.59 (1.27)
Portability of the iPad*	4.07 (1.17)
More personal experience than the television*	3.16 (1.30)
Because I miss the original telecast*	3.56 (1.23)
Overall iPad Viewing Experience Scale	3.60 (1.00)
iPad viewing changes the experience item	3.34 (1.14)

Note. *Individual scale items.

or movies on the iPad changed your viewing experience?'' and was offered only to respondents who answered the previous question with a Likert score of 3 to 5. Initially a random sample of 100 answers was analyzed, in order to identify common patterns of answers that could then be organized into different conceptual categories: *Mobility* refers to constructs related to the size and portability of the iPad, which allows the viewer to watch anywhere; *Control* indicates the ability to select and watch programs on demand, including such capabilities as interactive features that allow pausing, going back, and jumping ahead in the video timeline; *Viewing* suggests that watching on the iPad results in a change in viewing practices, such as changes in the type of content that is watched; *Engaging* suggests that watching on the iPad is a more engaging experience, and can include constructs such as viewing as a more personal experience, better screen resolution, closer subject-to-screen distance, and overall more physically comfortable viewing; ''*Commercials*'' indicates an overall positive ad experience on the iPad, including shorter, fewer, and better ads than on the television. ''Convenience'' simply means that the respondent used the word ''convenient'' or a synonym, without further clarification. ''Other'' was used to denote answers that did not fit the prescribed categories. And ''N/A'' was for respondents who did not answer, or gave an un-interpretable response or negative comment.

Two paid coders were trained by the researchers to code each response. If a respondent gave more than one reason, then that response was coded multiple times. Any disagreement between the two coders resulted in the researcher breaking the tie. Coder agreement was 86.6%. Results are reported below in Table 5, including the total of only primary (first) answers, followed by the total number of coded answers, which includes duplication of respondents who reported more than one reason.

Table 5
Coded Results by Variable Count: iPad Changing the Viewing Experience

Coded Variable	1st Answer *n* (Valid %)	Total Answers *n* (Including Duplicates)
Mobility	259 (23%)	299
Control	139 (12.3%)	175
Engaging	73 (6.5%)	85
Convenience	64 (5.7%)	66
Viewing	19 (1.7%)	22
Commercials	5 (0.4%)	8
Other	82 (7.3%)	83
No Answer/NA	485 (43.1%)	—

RQ_{4a}: Do iPad viewers report paying more attention to TV content than television viewers?

and

RQ_{4b}: Do viewers report watching TV on the iPad as a more absorbing experience than watching on a television?

To examine the differences between attention and absorption to viewing on the iPad versus the television, a paired samples *t*-test was conducted on two items—absorption and attention. Both the attention and absorption items employed the same 5-point scale used by McNiven and colleagues (2012). Results are below in Table 6. For the first item pair, ''When watching TV shows or movies, I pay full attention to the screen,'' the results indicate that the mean score for attention on the iPad ($M = 3.88$, $SD = 1.1$) was significantly lower than the mean score for the television ($M = 4.01$, $SD = 1.0$), $t(1,125) = -3.1$, $p < .01$. For the second item pair, ''When watching TV shows or movies, I get absorbed in the programming,'' the results also show that the mean score for the iPad ($M = 3.75$, $SD = 1.1$) was significantly lower than the mean score for the television ($M = 4.16$, $SD = .9$), $t(1,125) = -3.1$, $p < .05$.

These results show that iPad viewers are not as attentive to the screen, nor as absorbed in programming, as television viewers. In examining the relationship between attention and absorption, this time relative to iPad viewing in particular, a Pearson correlation coefficient was calculated between the two constructs. Results show that that attention to the screen was significantly associated with being absorbed in the programming when watching on an iPad ($r = .78$, $p < .01$). As a comparison, the same linear relationship between attention and absorption was conducted, this time specific watching on the television. Although results show a significant relationship between attention and absorption for television viewing ($r = .12$, $p < .01$), this relationship is much weaker than when viewing on the iPad. While overall attention and absorption levels to the television are significantly greater than they are to the iPad screen, for the subset of iPad viewers who *do* pay more attention, the viewing experience can be a very absorbing one, allowing for a typology of iPad viewers

Table 6
Viewing Attention and Absorption for the iPad and Television (5-point Likert Scale: Strongly Disagree to Strongly Agree)

Viewing behavior	iPad Mean (SD)	Television Mean (SD)	*t*
I pay full attention to the screen	3.88 (1.10)	4.01 (1.04)	−3.10**
I get absorbed in the program	3.75 (1.12)	4.16 (.937)	−10.20**

Note. **$p < .01$.

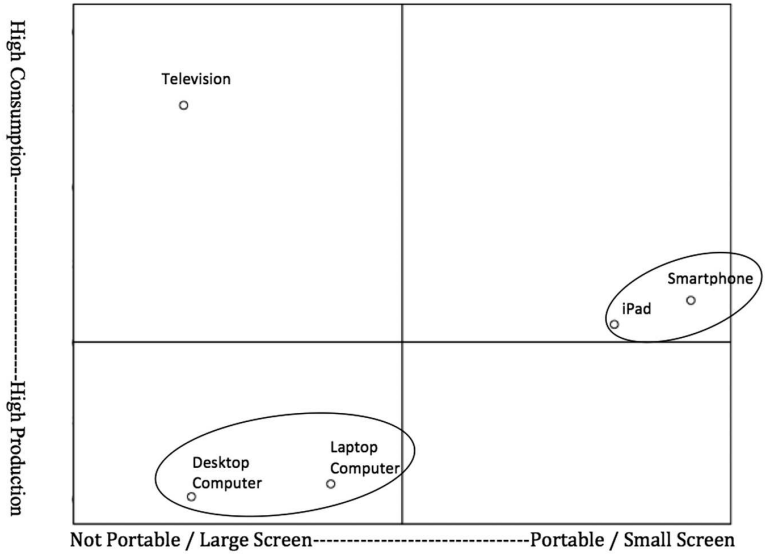
based on these levels. Paying attention to the iPad screen yields strong levels of absorption to the program.

Discussion

By asking respondents to rate the similarity between five screened devices—first overall, and again only related to watching TV shows and movies—a more robust picture emerged of the level of innovativeness of the iPad as a device for watching. On both multi-dimensional scales, each calculated on two undefined dimensions, the television was placed far from the remaining four devices. On the horizontal dimension, again for both scales, the order is television, desktop, laptop, iPad, and smartphone. Creating both multi-dimensional scaling models without asking respondents to compare devices based on particular features or attributes challenges the researcher to evaluate and interpret each model, using judgments based on focus group and other survey data in order to define and label each axis.

For the general similarities model (see Figure 4), screen size defines this horizontal dimension, which rationalizes the order that puts the television farthest from the smartphone. Further, the largest horizontal gap is between the laptop and iPad, producing a distinct demarcation between the two that defines the iPad as an ultra-portable screen. While the laptop has long been considered a portable device, it is

Figure 4
Multi-Dimensional Scaling Distance Model. General Similarities Between Five Screened Devices, with Labeled Dimensions

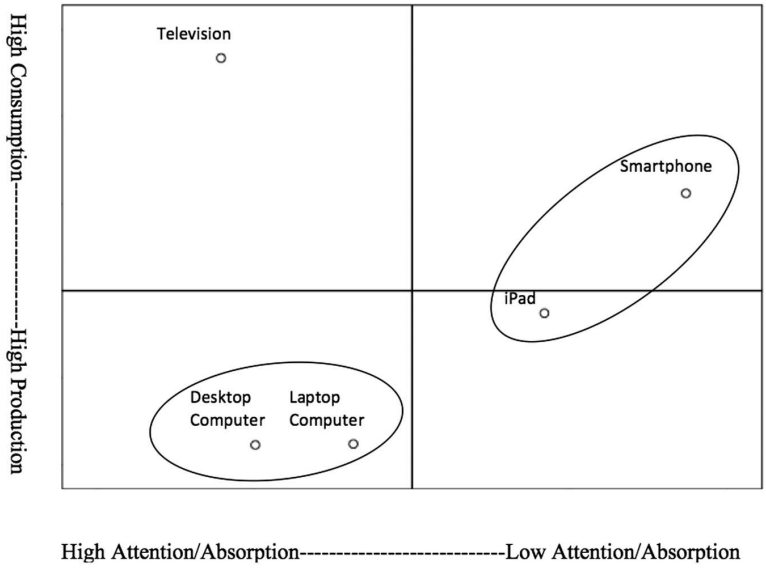


the introduction of the iPad that has pushed the laptop closer to its more traditional counterpart—the desktop—as a computer that is now less likely to be used ''on the go.'' Thus, while the product dimension is screen size, the value to the consumer is portability.

On the vertical dimension of the general similarities model, from top to bottom, the distance order is television, smartphone, iPad, laptop, and desktop. Based on our observations in focus groups, and the general position of the products, we interpret this dimension as reflecting levels of productiveness capabilities, with high consumption on one end, and high production on the other. Thus, the television is not production based, while the desktop is the most production based of the five devices. Both the smartphone and iPad are closely plotted together as consumption-based products, while the desktop is in close proximity to the laptop as devices designed to produce content in addition to consumption.

For the second model related to watching TV and movies (see Figure 5), the horizontal dimension can be further defined as being high attention and absorption to the screen on one end, and low attention and absorption on the other. This takes the notion of defining screen size one step further, and is consistent with previous findings linking television screen size with absorption and attention to programming (McNiven et al., 2012). This suggests, and is further supported by subsequent data on attention and absorption, that iPad viewers are neither as attentive, nor as absorbed

Figure 5
Multi-Dimensional Scaling Distance Model, TV and Movie Watching Similarities Between Five Screened Devices, with Labeled Dimensions



in programming as television viewers are. For the second, vertical dimension, the distances order was television, smartphone, iPad, laptop, and desktop, which is comparable to the general similarities model, reinforcing the production versus consumption typography of devices.

While both MDS models are largely visually analogous, two particular relationships seem to be the most telling overall. First, the geometric space between the television and each of the other four devices is similar, where the television is isolated, but relatively the same distance, from all of them. This illuminates how the television set is less comparable to the rest. Unlike the iPad, smartphone, and personal computer, the television is, and always has been, a social object by nature, whereby TV programming is its sole consumption variable. In short, the television is unimodal in terms of consumption, despite advances in television-related technologies that allow today's viewers more control over content than ever before. Second, the relationships between the iPad and both the smartphone and laptop change the most between models. In the general similarities model, the iPad sits very close to the smartphone, isolating both devices from the remaining three, and linking them together in similarity (on both dimensions). They are, in fact, closer in screen size, and much more portable, compared to the other three devices. However, in the watching TV and movies similarities model, the iPad sits more equidistant between the smartphone and the laptop. This difference between MDS models indicates that overall, while the iPad's screen is not very large when measured in inches, it does possess the qualities of a device more suitable for watching entire TV shows and movies.

Quite possibly, then, the iPad is interpreted as one of two different devices: a bigger smartphone, but capable of watching more and for longer periods of time due to its larger, more immersive screen. This creates a viewing experience that, while not as absorbing as larger screen devices such as laptops, desktops, and televisions, can certainly be a feasible option for viewing; and a smaller laptop, a more portable and convenient option for watching the same content that would be viewed on a personal computer. This places the iPad, specifically related to TV and movie watching, as a dynamically continuous innovation. While the iPad offers viewing-related features that are not foreign to those accustomed to streaming on a computer, it does allow for a level of portability and convenience that, when combined with available program choices, makes TV watching portable in ways that the personal computer cannot be.

A primary purpose of this study was to understand how individuals use their iPads, including watching TV, by evaluating both rate and variety of use, using Shih and Venkatesh's (2004) 2×2 typology. Here, the two largest categories by far were intense use (high rate and high variety, 42% of respondents), and limited use (low rate and low variety, 40% of respondents). Both non-specialized and specialized use categories each contained less than 10% of the sample.

Overall then, two polar opposite iPad user types emerged—those who use it for many reasons, and often (intense users), and those who use it for just a few purposes, and less frequent (limited users). This distribution of iPad users based on these two

distinctive user groups makes sense. Findings from the focus groups established that some people found their iPad to be less productive than they had originally thought when purchased. Still, others were able to adapt their computer skills to be able to use their iPad for tasks that generally require a mouse and keyboard. As is discussed next, there is certainly a divide between the types of activities that are most prevalent through the iPad, which brings into question the levels of production and consumption attainable through the device.

Comparing high- versus low-rate iPad users also points to how levels of video consumption—be it TV shows, movies, or Web-only content—play a role in time spent on the tablet for other tasks. Overall, watching TV shows and movies requires a greater time commitment than other activities such as e-mail and social media. This higher time spent watching also means a greater familiarity with their device, something that could translate into more time on other tasks besides watching. Conversely, those who spend less time watching on the iPad may then consider their iPad more as a secondary (or tertiary) screen, dipping in and out of it with less frequency than those who stream more on the device. Therefore, those who more often turn to their iPad to watch TV shows and movies might also be pre-determining their overall higher rate of use of the device for other tasks, compared to those who embrace their iPad less as a TV. While this appears redundant (people who are high-rate iPad users spend more time on all iPad tasks), it is actually the high rate of use of their device specifically as a TV that could be the predictor of overall time spent using the iPad. This finding is in line with Shih and Venkatesh's (2004) empirical support on a technological dimension: Higher accumulated product experience is a determinant of use-diffusion, specifically resulting in higher variety and rate of use, as it pertains to home technology.

Comparisons were made between the iPad and traditional television on several items. The most reported reason for choosing the iPad over the television was portability, followed by the ability to control the viewing schedule. These two reasons offer something that both the television, and in many cases the personal computer, cannot. Televisions and larger personal computers were not designed to be portable. Because streaming video typically does not require a real keyboard, the iPad is the well-suited alternative for watching, particularly ''on the go.''

Mobility trumps content as the primary reason for watching TV and movies on the iPad, as was found through analysis of the range of answers to the open-ended question, ''How has watching on the iPad changed your viewing experience?'' Both reasons were by far the most common answers. However, it was the mobility of the iPad as a device for watching that received the most attention—23% of respondents claimed this was their reason, nearly twice as many as those who suggested ''control'' of viewed content. It makes sense that mobility changes the viewing experience more than control. For years, controlling content on demand has been an option for watching TV shows and movies. Both on-demand television platforms and streaming through a personal computer are options that are not foreign to many viewers. Together, however, mobility *and* control are combined to offer the viewer more power to watch ''whatever, wherever, whenever.''

When measuring both attention to the screen and absorption of content while watching TV and movies, the television scored higher than the iPad. Thus, it could be concluded that the television watching experience is overall a more absorbing experience, compared to the iPad. Larger screen have been found to offer a more absorbing TV-watching experience compared to smaller screens (McNiven et al., 2012). However, further analysis shows that there is more to these two viewing constructs than merely measuring actual screen size or evaluating them based on the device being watched. This is evident when looking at the relationship between attention and absorption when watching. While there is a positive linear relationship between attention and absorption for both iPad and television viewing, this relationship is much weaker for the television than for the iPad. So, for the subset of people who do pay high attention to the iPad, there is greater absorption to programming.

A further explanation for viewing attention levels, and therefore absorption levels, might be related back to television screen size in the home. When dividing respondents based on owning a large versus small screen television, results reveal that those with large screens pay more attention to programs, regardless of whether they watch on a television or the iPad. This finding confirms earlier work (McNiven et al., 2012). The mere fact that an individual owns a larger television may attribute to the amount of interest they have in watching TV overall, resulting in a higher level of TV centricity. Therefore overall centricity may impact how much attention to and absorption of programming exists when watching, regardless of screen size.

Overall, the tablet computer offers a dynamic way to access TV content in ways that didn't exist before the iPad's introduction in 2010. Understanding why individuals are embracing this portable, on-demand option for streaming programming reaches beyond the already-familiar new digital age of video consumption, and speaks to the larger idea of greater consumer control over what, where, and when one chooses to watch TV.

Limitations of the Study

A potential limitation of this study was the choice to not use a random sample of adults in the U.S. for the survey, instead relying a national panel service to recruit participants. Qualtrics did, however, provide a broad range of ages and geographic spread of participants. The survey panel was over-represented in the 19 to 29 and 30 to 39 year age groups, and under-represented in the 60 to 69 and 70+ age groups, compared to the distribution of adults in the United States. Further, the male-to-female ratio in this sample was 77.6, compared to the national ratio of 96.7. Also, this sample was over-representative of white respondents, and under-representative of African-Americans, Hispanics, and Latinos (U.S. Census Bureau, 2010). However, the purpose of this sample was not to be representative of the U.S. adult population.

The nature of survey data itself carries limitations on reliability. Self-reporting of answers carries the risk of respondents not providing honest or accurate answers.

And, when using Likert scale questions, respondents can interpret answer selections differently. To help with this limitation, only polar opposite choices (e.g., *strongly disagree* and *strongly agree*), and a middle "neutral" choice were given. Respondents were also forced to answer nearly all items in order to move to the next, possibly adding inaccurate data for some who either had nothing to contribute to a particular item, or merely would have preferred not to answer. Despite overall limitations related to survey methodology, the sizeable sample (n = 1,126) did provide a large amount of data that allowed overall robust generalizable conclusions about iPad usage.

Finally, this study examined these viewing constructs relative to overall viewing of content, rather than isolating any specific genre or length of programming. While a number of studies have successfully used a general comparison approach (for example, McNiven et al., 2012), we argue that more specific examination of viewing behavior in relation to content type be part of the methodology in future studies.

Funding

The authors received funding from the James M. Cox Jr. Center.

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