Multitasking in an Age of Multiple Screens: Key Demographic Changes and Differences

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Determining which age range and gender are more likely to multitask while watching television is important to advertisers because of the rising occurrence of media multitasking. The US Simmons annual survey of 25,000 respondents each year served as examination of trends regarding multitasking. Findings indicate women multitask more than men while watching television. Mothers, in particular, are most likely to text and use the internet while watching television when compared to all age cohorts and men and women in general. These findings can be used to make more informed media decisions regarding television and other forms of video advertising.

Keywords: multitasking, screens, digital, gender, age, media

INTRODUCTION

It has been observed that media use has become prolific in modern society (Tian, Hong, & Guang, 2019). In an increasingly fragmented media landscape, advertisers need to ensure that their ads will be effective on various platforms by best reaching their target audiences given the prolific nature of media. With many media choices available to consumers, audience ratings have decreased and audiences have become more segmented. In addition to media fragmentation there is another threat to advertisers: consumer attention spans. Media multitasking has the capability of making already fragmented audiences even smaller. An increasing number of viewers of TV shows are on their phones while watching TV, which has the potential to make many advertisements go unseen.

Some demographic groups may be more likely to second screen than others. When advertisers are aware of this, they can make smarter decisions of where is best to display their message based on target audiences of various media outlets. Analyzing the likelihood for multitasking based on age and gender helps to ensure that the most effective TV spots are purchased. Further recommendations for advertisers also can be concluded based upon findings of how audiences differ regarding multitasking.

LITERATURE REVIEW

Age and Attention

Attention span and multitasking ability vary across age ranges. Younger children have trouble maintaining focus because they struggle with keeping more than one thing in their mind at once (Landau, 2011). Some researchers believe that this short attention span and problems maintaining focus are due to external factors, especially the media they consume. In one study, it was concluded that early exposure to television was thought to worsen children's attention spans at age seven (Espiritu, 2016).

The interest in attention spans is not limited to children. As younger people may have a shorter attention span, so do those who are retirement-aged. Older people and younger people direct the same amount of attention to the task they're switching over to, but older adults have more difficulty re-establishing their attention to the original memory and letting go of the interruption (Landau, 2011).

Another study tested 18-32 year-olds in one group, then 20 people with an average age of 69 in another group using fMRI. The conclusion that the older group had more trouble multitasking could be explained by the "internal chatter" that older people feel they have to "mute" in order to get a task done. (Hamilton, 2008). In addition to this "internal chatter," older people also have issues multitasking because of changes that take place in an aging brain (Girard, 2007). This may include motor moving and visual processing, among others.

Gender

Many of the opinions regarding which gender is better at multitasking, if any, are based upon stereotypes. For example, in a 2015 study, there was a question that asked, "How far do you agree with the following being examples of multitasking?" (Szameitat, Hamaida, Tulley, Saylik, & Ottermans, 2015) The top-rated answers included "Feeding a toddler and talking on the phone", "Talking on the phone while driving," and "Dealing with two customers at the same time".

Similarly, when asked the question "What do you think, how much multitasking is required in the following occupations?" the top answers were teacher, secretary, and housewife. Most answers were related to more stereotypical or traditional views of women as homemakers. Therefore, most people who participated in the survey most likely saw multitaskers as women juggling various responsibilities while running a home.

Although some may see women as better multitaskers, there is close to no research that claims that women are actually better multitaskers. When researchers used fMRI scans to measure brain activity, women were not proven to be any better than men at multitasking in various scenarios (Laloyaux, Laroi, & Hirnstein, 2018). Other research may state that one gender is better than the other at multitasking, but no current research is conclusive for gender-based differences in multitasking. For example, a BMC Springer study found that women were better than men at multitasking tasks, but they pointed to a lack of empirical studies on the difference of gender in multitasking (Stoet, O'Connor, Conner, & Laws, 2013).

Dangers of Multitasking

Regardless of what is considered a multitasking "peak," there is still substantial evidence which points to the fact that multitasking is detrimental to attention span and work productivity no matter the age. Considering what age or gender multitasks best is entirely relative. In a Pew research study, 55% of participants surveyed agreed with the statement "In 2020 the brains of multitasking teens and young adults are "wired" differently from those over age 35 and overall it yields helpful results." (Anderson & Rainie, 2012). However, these people who agreed with this were more optimistic that this would be the case, instead of actually being positive that this was fact.

The dangers of multitasking stem from the mechanics of how the brain works when completing a task. When people perform tasks that need a lot of focus, they use the prefrontal cortex of the brain (Girard, 2007). In doing so, the brain is in "executive" control. This is how most cognitive functioning takes place. Mental resources are distributed in order to complete the task, as well as setting deadlines and goal shifting. Dopamine is also released whenever you complete a mini task (Kim, 2015). Therefore, people are

encouraged by dopamine to keep switching and doing small tasks so that it feels like we're accomplishing a lot more than we really are.

A study by Girard also concludes that multitasking involves a complete shift of focus (Girard, 2007). People who multitask are not performing all tasks at once. Instead, this shift of focus causes extra time wasted trying to refocus.

The damage of multitasking can be permanent (Kim, 2015). Along with lowering your work quality and efficiency, it becomes difficult to filter out irrelevant information and organize thoughts. Emotional intelligence skills and IQ also decrease as a result of multitasking (Bradberry, 2017). In fact, the IQ of a man who multitasks often can drop to the level of an eight-year-old's.

Smartphone/Internet Addiction

When asked to give the negative effects of smartphones, some of the most popular answers from college students reflected this idea of "information overload". Approximately 85% of participants responded that they are very time-consuming and 69% indicated that they distract the user's attention (Al-Harrasi & Al-Badi, 2014). It is evident that smartphone users feel the need to use their smartphones, yet feel overwhelmed by the amount of time it takes up and the amount of information that can be presented to them at once.

Smartphone and internet addiction is a topic of concern throughout modern society. It is estimated that the average person touches or swipes their phone in excess of hundreds of times per day (Lewis, 2017). Of course, social network websites contribute to the compulsive-like need by some to frequently check on ones "friends" throughout the day or night, creating an almost addictive form of behavior.

Smartphones may have also contributed to an impact on the average human attention span. Due to continuous partial attention, people could be losing their ability to focus & their IQ is said to be lowered when using smartphones often (Lewis, 2017). Even young people, who may be seen as having the propensity to multitask because they grew up around such technology, have problems concentrating because of this attempted multitasking (Girard, 2007). According to researchers investigating multitasking, those who use smartphones are also more likely to use it absentmindedly (Marty-Dugas, Ralph, Oakman, & Smilek, 2018). The reason suggested for this is that smartphones may cause a condition of absentmindedness.

Modern Media Fragmentation and Distraction

Multitasking especially affects media consumption. Traditional TV ads compete for attention against a variety of content. The goal of media and advertising is to engage as many "eyeballs" as possible. This becomes a challenge when there are many distractions and many different types of media. According to report released by eMarketer, 70% of US adults 'second-screen' while watching TV (Kirkpatrick, 2017).

This fragmentation is a major challenge pertaining to viewers paying attention to ads. The impact of looking at multiple screens can be heightened when watching TV with other people as well (Friedman, 2016). Research from the Council for Research Excellence (CRE), conducted at the Time Warner's Media Lab in New York and Nielsen Consumer Neuroscience's lab in Boston, examined the concept of "solo viewing" and viewing with a second screen. Participants were either solo viewing with a second screen, viewing with co-viewers or co-viewing with second screens.

Based on the Friedman (2016) study, 90% of people noticed TV ads when solo viewing and only looking at one screen. When viewing with a second screen, this percentage decreased to 75% of people who noticed the TV ad. Although 75% of people noticed the TV ad when viewing with a second screen, the effectiveness dropped when consumers continued to switch from screen to screen. Viewers become distracted from TV ads when looking at a second screen, even when the ad on the second screen communicates the same message (Garaus, Wagner, & Bäck, 2017).

Viewers might also be more likely to multitask while watching certain shows. According to a study by Razorfish and Yahoo, people are most likely to multitask while watching reality shows (O'Neill, 2011). They are also likely to multitask while watching shows about food, comedy shows, the news, and sports. This is also reflected in a study conducted by Christensen, Bickham, Ross, & Rich (2015) which was

conducted on adolescents. Drama programming had 11% multitasking moments, while comedy programming had 37.2% multitasking moments.

These results further confirm a comment by Razorfish on their study: "Perhaps these intense programs stoke multitasking as viewers get hooked and see ways to further immerse themselves in the show's world. It can be concluded that shows that do not require a lot of attention are the shows where people are likely to multitask." However, some most people involved in this study instead saw multitasking as an enhancement or something positive rather than a distraction in both studies, perhaps to use multitasking as a social, immersing additional experience.

Response by Advertisers to Short Attention Spans

Advertisers have been trying to find a solution to the short attention span of viewers. According to a study by Comscore, the average commercial attention span for millennials is 5-6 seconds (Castillo, 2017). This means that viewers may not be receptive to traditional commercial breaks anymore. Anything longer than that may translate into viewers second-screening and multitasking during a commercial break.

In September of 2018, NBCUniversal began to roll out a new "prime pod" ad format, with a shorter commercial pod of 60 seconds (Lynch, 2018). Consumer retention with these shorter commercial breaks are 86%. Other video services are taking the same approach to seek to reduce ad load. By 2021, Hulu intends to offer "non-intrusive" ad formats (Poggi, 2018). This ad format will include appealing content where advertising can be seamlessly incorporated into the programming.

METHODOLOGY

Research Question: *While examining the changes in modern media multitasking across demographics, can it be concluded that any age or gender is more likely to multitask?*

Participants and Source of Data

The source of data that met our requirements was the Simmons National Consumer Study (NCS). Simmons has consistently used a probability-based stratified sampling to provide nationally representative data for consumers in the United States, including gender, age and presence or absence of children in the household.

The Simmons NCS survey has been conducted since 1952, so it allows us to compare data over time. The data is generalizable with a very large sample allowing us to look at data among sub-groups with robustness. Typically, each year Simmons interviews approximately 25,000 consumers as a representative sample of the consumers in the United States age 18 and above.

The Simmons data has been primarily used by professionals in the field of advertising because it provides consumers' overall media habits and opinions regarding various activities. However, it should be noted that Simmons provides aggregate rather than individual-level data. In this form, Simmons only allows researchers to run univariate statistics such as percentages and frequencies. Finally, the Simmons NCS survey includes questions that capture information regarding multitasking behavior.

Measures

For a modern definition of media multitasking, the study will analyze those who use their phones to text while watching TV and those who use their phones to visit websites while watching TV. These two questions can be considered second screening and will be analyzed separately because they can lead to different conclusions for advertisers. Therefore, there are two questions that participants responded as doing often: "Texting on my cell phone at the same time while watching TV" and "Visiting websites on my cell phone at the same time while watching TV".

These two Simmons questions are standardized only within the time frame of 2010-2017. In order to keep the data consistent, Simmons data will only be analyzed during that time frame.

Simmons indices above 120 (or below 80) are generally considered significant. The largest index for gender and age for each year are used to determine which age and gender each year are the most likely to

multitask when compared to the population. Horizontal percentages are analyzed to show change for age and gender over time. The findings are displayed in a line graph to show this change.

Procedure

Age and gender will be considered in order to see if it has an effect on using a smartphone while watching TV. For these Simmons crosstabs, this serves as the definition of "multitasking" because based on the literature review, this is the most common type of multitasking while watching television. Because years over time are being observed, change over the years when it comes to multitasking will also be analyzed.

Age and gender are the most prevalent forms of demographic data used to target consumers. Therefore, Simmons survey data from 2010 - 2017 was used to create crosstabs reflective of age and gender related categories. The rows section included age and gender. Age was broken down into brackets of 18-24, 25-34, 35-44, 45-54, and 55+. Gender was broken down into male and female.

Every row was tested against the column selections of those who often use their phone to text while watching TV and those who often visit websites while watching TV. These crosstabs were pulled in order to see which ages and which gender were most likely to use their smartphone while watching TV. Demographics that had indexes of above 120 were considered to be more likely to multitask.

For years 2010 - 2017, Simmons is used to analyze data and derive insights because the same question is asked over this period of time. This makes the data more standardized in order to have exact comparisons from year to year. The Simmons question was not asked in the same way prior to 2010, so this table is a way in to summarize results during this time frame. This methodology is also a way in which the paper will not only rely on Simmons for insights. The columns of the table will include source of study, date, sample size, nature of sample and results.

RESULTS

2010 - 2017: Texting on Cellphone/Smartphone often while Watching TV

Simmons crosstabs were run for the years of 2010 - 2017 for statements against age and gender. Each year, the age and gender with the highest index was recorded. Table 1, which follows immediately below, provides the results of these cross tabulations.

TABLE 1

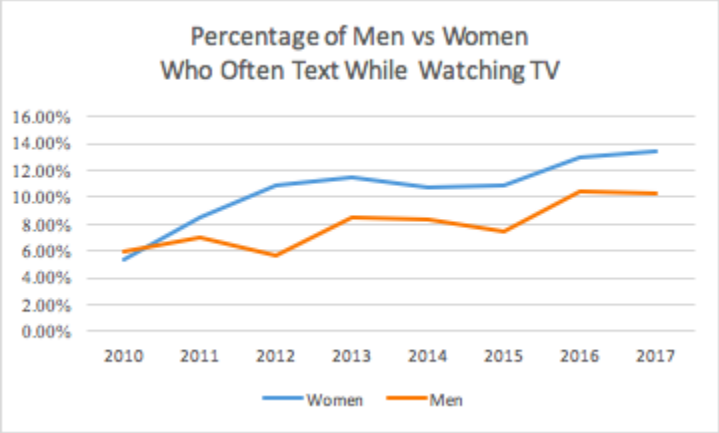
Simmons Results for CABLE TELEVISION RADIO → DOING THINGS SAME TIME - WHILE WATCHING TV → TEXT ON MY CELL PHONE/SMARTPHONE → OFTEN				
Year	*Age with Highest Index*	*Age Index*	*Gender with Highest Index*	*Gender Index*
2010	18-24	268	Male	106
2011	18-24	215	Female	110
2012	25-34	196	Female	119
2013	25-34	188	Female	114
2014	18-24	177	Female	112
2015	25-34	164	Female	118

2016	25-34	159	Female	110
2017	25-34	141	Female	113

Between 2010 to 2017, the age range most likely to multitask while watching TV is 25-34 when compared with other age ranges. This age range had the highest index most years. From 2015-2017, ages 25-34 was consistently the most likely to multitask. Women were the most likely to multitask for all years except 2010.

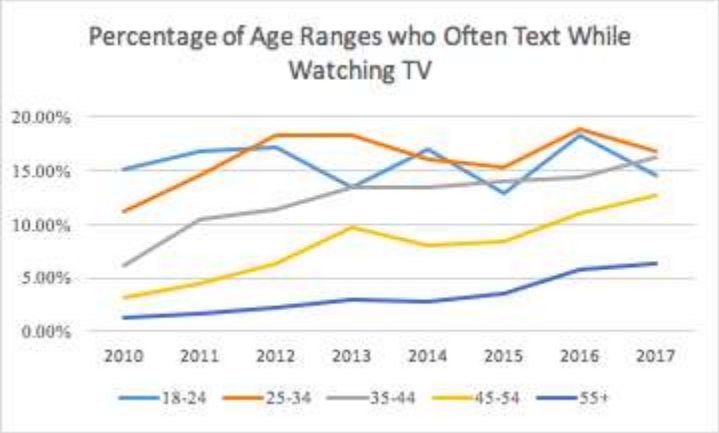
In order to determine the increase or decrease of multitasking over time, horizontal percentages were analyzed. This indicates how the percent of those who multitask have increased over time. Based on indexes, women were more likely to multitask over the years compared to men (see Figure 1) and 25-34 year olds was the age group most likely to multitask over the trended years (see Figure 2):

FIGURE 1



The percentage of those who often text while watching TV is overall increasing throughout the years of 2010 - 2017, and more so for women than men.

FIGURE 2



While most age ranges are seeing an increase of texting while watching TV, 18-24 year-olds and 25-34 year-olds are not steadily increasing. However, it is evident that most 25-34 year olds often text while

watching TV. These changes in the line graph also likely reflect media changes when it comes to streaming, VOD, and other platforms with increasing popularity that are causing television to lose viewership. Consistent with Table 1, Table 2, which follows immediately below, provides the results of the cross tabulations pertaining to the multitasking action of visiting websites while watching TV.

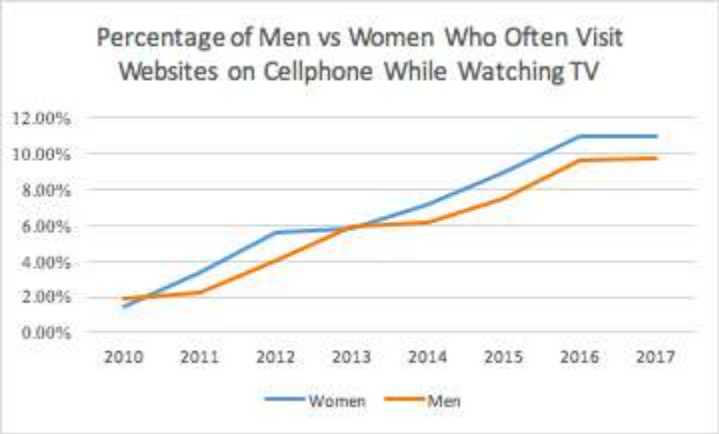
TABLE 2
2010 - 2017: VISITING WEBSITES ON CELLPHONE/SMARTPHONE OFTEN WHILE WATCHING TV

Simmons Results for "CABLE TELEVISION RADIO → DOING THINGS SAME TIME - WHILE WATCHING TV → VISIT WEBSITES ON MY CELL PHONE/SMARTPHONE → OFTEN				
Year	Age with Highest Index	Age Index	Gender with Highest Index	Gender Index
2010	18-24	268	Male	113
2011	18-24	273	Female	121
2012	25-34	205	Female	116
2013	25-34	231	Male	101
2014	25-34	218	Female	107
2015	25-34	185	Female	109
2016	25-54	201	Female	107
2017	25-54	164	Female	106

The results of those more likely to visit websites while watching TV are similar to those who text while watching TV. Women and those aged 25-34 are the most likely to visit websites while watching TV, with both women and ages 25-34 having the highest indexes most years.

The percentages of men against women, and ages 25-34 against all other age cohorts over the years who visit websites on their cell phone while watching TV also reflect this change.

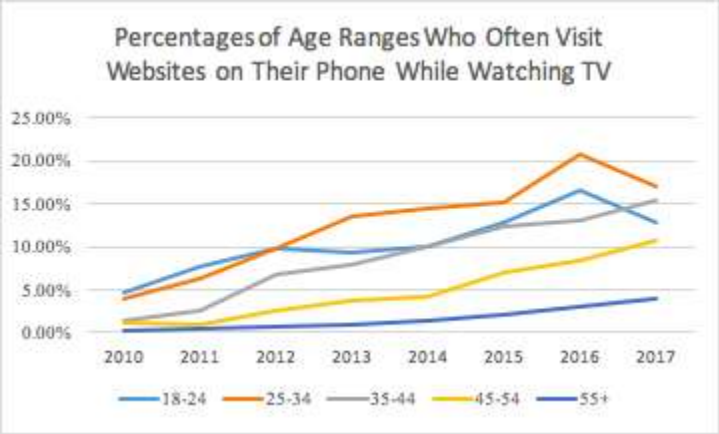
FIGURE 4



The percentage of men and women who often visit websites while watching TV is increasing significantly and it mirrors the indices of women overall being more likely to do so than men. The percentage of men who do so seems to increase slightly from 2016 - 2017, but this overall remains stagnant within recent years. The largest increase was from 2014-2016.

Similar changes trends are seen across age ranges, but with more decreases amongst the youngest age groups in recent years.

FIGURE 5



All age ranges are increasingly visiting websites on their phones while watching TV as the years go on. However, there is a significant drop in percentages of 18-24 year-olds and 25-34 year-olds who visit websites on their phones while watching TV in 2017. In fact, if this pattern continues, 35-44 year-olds may soon become the age demographic that most uses their phones to visit websites while watching TV.

Mothers

Since 25-34 year olds and women are the age most likely to text or use the web while watching TV, it might be concluded that mothers are an age demographic more likely to multitask. This can be proven using Simmons data as well when compared to other demographics.

FIGURE 6

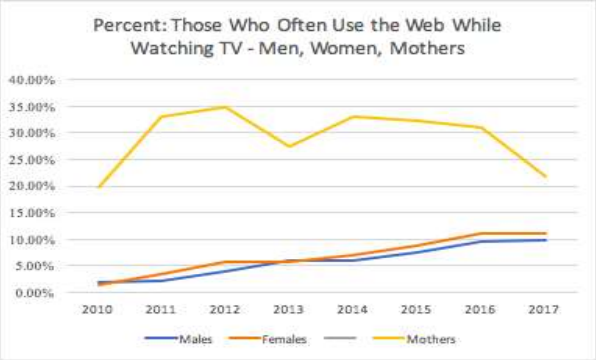
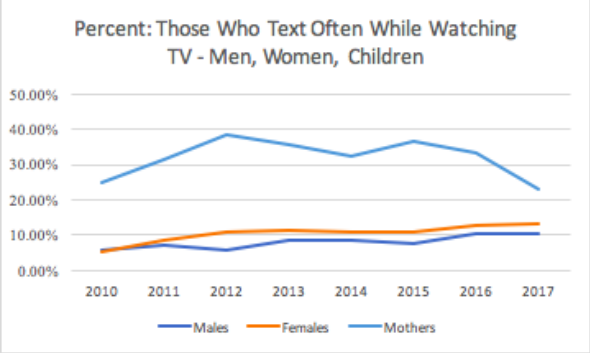


FIGURE 7



It is evident that mothers are the most likely to multitask year after year. Although some years the percentage of mothers who multitask drop, it remains well above both men and women on average. Similar to other analysis of percentages, the numbers seem to drop around the year 2017. This is most likely due to the rise of streaming services, in which the percentages of people watching TV in general have dropped. However, mothers remain the highest index of people who often text and use the web while watching TV as well.

FIGURE 8

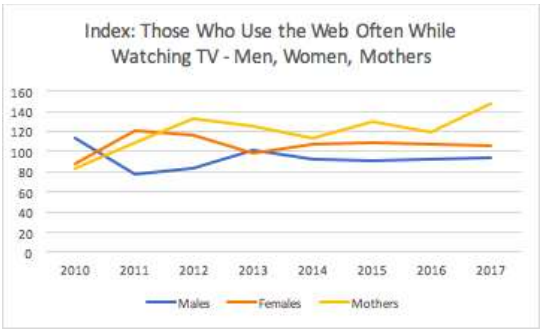
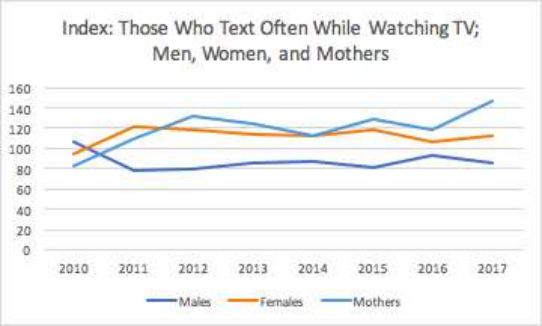


FIGURE 9



Mothers are more likely than the general population to multitask while watching TV. In 2017 for both categories, the index was above 140, which means that mothers are more than 40% more likely to multitask while watching TV than the general population. Although women also have a high index, it is still behind specifically mothers.

With this information advertisers can conclude which genres the viewers are most likely to be multitasking, based on viewership. However, advertisers are looking to be as accurate as possible when choosing the best media to advertise on. A category of "mothers" may not be as helpful to media planners and advertisers when choosing media since the categories of age and gender are the two key pieces of information needed to purchase media. Knowing what ages of mothers are the most likely to text and use the internet while watching TV is essential in order to be accurate in any media planning activity.

FIGURE 10

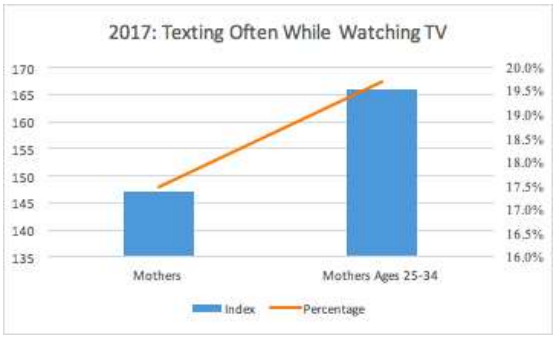
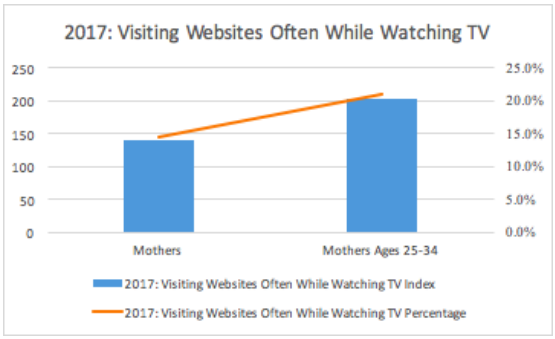


FIGURE 11



As seen in the two figures, although mothers in general are the most likely to second screen while watching TV, mothers aged 25-34 are even more likely. In the most recent year available in Simmons, 2017, mothers are index at 147 for often texting while watching TV. When this demographic is made to be more specific and mothers aged 25-34 is analyzed, this index increases to 166. A similar trend is seen in percentages of mothers aged 25-34 who often text while watching TV. There is an increase in the percentage of mothers aged 25-34 who do so in 2017, going from 17.5% to 19.7%.

An increase is also seen when analyzing mothers aged 25-34 who visit websites while watching TV when compared to mothers who visit websites while watching TV. When specifying the age range, the index increases from 139 to 202, and the percentage increases from 14.4% to 21%.

It is evident that mothers are more likely than the rest of the population to second screen while watching TV. When specifying the age ranges of mothers, the likelihood increases even more.

Implications for Advertisers

Knowing that mothers ages 25-34 are the most likely to multitask, media strategies will benefit in reflecting this understand of multitasking behavior in order to assure that the media is getting the full attention of this important demographic. When using tools such as Simmons (or its newly merged partner – MRI), advertisers can see specifically what media mothers ages 25-34 are likely to consume. Knowing that ages 25-34 and women are also more likely to second screen than the general population, advertisers can also look into these two demographics when planning media purchases as well across all potential screens that may be in competition for the attention of women with children.

For example, according to MRI, some shows that mothers aged 25-34 are most likely to watch include *Empire* (Index 171) and *Grey's Anatomy* (Index 215). Networks included *TLC* (*Index 147*) *Nickelodeon* (*Index 272*). These shows are mostly in the entertainment category, and some are children shows. Knowing this information makes the distinction between texting and using the web as forms of second screening while watching TV extremely important when implementing strategy.

As another example, one of the networks that mothers aged 25-34 are more likely to watch is *Nickelodeon*. Since this is a children's network, it can be assumed that mothers are second screening without engaging with the content. In this case, mothers are the secondary audience for shows on this network while their children are the primary audience. Mothers are most likely either texting or browsing the internet while watching, but it is unlikely that they would be engaging with the show on a second screen for their own enjoyment or interest.

However, while watching a show such as *Grey's Anatomy,* they can be using the web or texting yet still engaging with the content. Many advertisers are making use of bringing the conversation online, especially for entertainment and drama shows. Hashtags on Twitter that trend while a show is airing show that networks understand the amount of second-screening that takes place while watching a show. Ads that are placed within these trending topics or on social media accounts can make the best use of second-screening from an advertising standpoint.

CONCLUSIONS

For years 2010 to 2017, the results were similar in terms of what age range and gender is most likely to both use their phones to visit websites, as well as text while watching TV. However, a major difference is the percentage of people overall who are texting while watching TV versus people who are using their phones to visit websites while watching TV. The percentages across all age ranges and both genders are always higher for visiting websites while watching TV. The results for using a smartphone to visit websites while watching TV also exhibited a steeper slope, which means that smartphone usage while watching TV to visit websites is likely to increase in the near term.

Texting while watching TV and using a phone to visit websites while watching TV imply different conclusions for advertisers. When texting, a user can be engaging with content if the conversation is about a TV show, but it is more likely that an advertiser's message during the show will be lost since there is no advertising placed when a person opens up their messages. However, when a person uses the internet while

watching TV, there is still a chance that advertisers' messages can be seen. When using the internet to look at the social media pages of the show, using Twitter hashtags, and other interactive methods, advertisers can place ads in these areas online in order to reach the audience that is not watching on their TV placed advertising.

Although second screening is seen as a negative for most advertisers, there is an opportunity to, instead, embrace the fact that people are multitasking while watching TV. By placing ads in areas where people are more likely to watch, advertisers will obtain a larger audience.

Areas for Further Exploration and Research

Significant drops in texting and visiting websites on a smartphone while watching TV is most likely due to an overall drop in TV viewership as streaming services, VOD, and other platforms are increasing in popularity and lowering ratings for linear TV. When studying the effect on multitasking while watching these platforms, conclusions can be made to address how streaming services impacts viewership while watching content in other formats. Since many of these streaming services have a reduced ad load, results may differ from the linear TV data presented in this research.

Reduced ad load is also a topic of interest in terms of media multitasking and second-screening. Companies such as NBCUniversal have been testing the effectiveness of reduced ad load in order to maintain the attention of viewers. Instead of a longer more traditional pod, NBCUniversal is seeking to prove the effectiveness of showing viewers a 1-minute pod in order to improve brand recall and favorability. If most linear television begins to enact this same type of viewer experience, it may be an improvement to the amount of people who are second-screening while watching TV.

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