

TARGETING EFFECTIVENESS IN DIGITAL HEALTHCARE ADVERTISING

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by

BRITTNEY MONROE

Dr. Glen T. Cameron, Thesis Supervisor

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The undersigned, appointed by the dean of the Graduate School, have examined the thesis entitled

TAREGETING EFFECTIVENESS IN HEALTHCARE ADVERTISING

presented by Brittney Monroe,

a candidate for the degree of Master's of Arts,

and hereby certify that, in their opinion, it is worthy of acceptance.

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Professor Glen Cameron

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Professor Brad Best

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Professor Brian Houston

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Professor Stephanie Padgett

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# TAREGETING EFFECTIVENESS IN HEALTHCARE ADVERTISING

Brittney Monroe

Dr. Glen T. Cameron, Thesis Supervisor

## ABSTRACT

Throughout the past 300 years since the first ad was distributed via printed newspaper, the field of advertising has drastically changed. Specifically, with the introduction of online media, marketers and advertisers have sought to gain insight as to how this type of media is consumed moreover how advertisements in this space can be most effective.

An area of focus within online marketing remains to be healthcare advertising. Grounded in the Hornik et. al., (2013) study of information seeking and searching, a study with digital media users was conducted to gain a better understanding of how individuals seek healthcare information online. Elaborating off this theory, an analysis of how advertising in this field is affected was conducted, specifically looking at the context in which ad messages are presented to a digital media user.

## **CHAPTER 1: Introduction**

In 1704, the first advertisement in U.S. history was published in the Boston News-Letter (AdAge, 1999). At that time, newspapers were the main form of communicating the news to the public. As such, many people who read the newspaper also saw the advertisement that was placed. Since that first advertisement over three hundred years ago, much has changed. Radio, television, and digital media were all introduced and became a successful means of communicating news, of finding information, and also of enjoyment. Similarly, advertising has also evolved over time.

As a result of the significant differences between newspaper ads and online advertising, marketers and advertisers alike are moving towards more use of digital media. In fact, online advertising has become one of the most commonly used strategies for marketing, and in an eMarketer article titled, “Advertisers will spend Nearly \$600 Billion Worldwide in 2015,” the company predicts that in the United States alone approximately \$189.06 Billion will be spent in digital media and mobile (2014). Although sometimes difficult to image such a large sum of money disbursed in digital advertising, this is actually quite intuitive because audiences are continually moving towards digital media over that of television, radio, and other forms.

Obviously, advertisers recognize the significance of that much time being spent in front of a computer, cell phone, or tablet. Also, where the audience goes, the advertisers will follow. With so many people now using the Internet for such a variety of purposes, new tools have been developed to help efficiently target members of the ideal audience

that advertisers are trying to put into contact with the product or service being offered. This can be done a variety of ways, but two of the most efficient and effective means of finding the ideal member of the target audience is through audience as well as through contextual advertising. Audience targeting is used by marketers to serve advertisements to particular group of people within the ideal target set of the advertiser. Comparatively, contextual advertising matches the ad to the content of the page in which it is served.

Some of the larger advertisers who use digital media buying are those in the health care field, specifically hospitals and hospital conglomerates. The campaigns run for these entities can range in specificity from general branding to that of a particular disease or condition, such as cancer or cardiac health. However, certain problems arise when targeting people for health care, as some subjects are more sensitive and thus practitioners must be wary with their targeting. As such, the two types are employed, both audience based and contextual, in order to create the most effective campaign possible and hopefully puts the public in touch with those who can provide the service. While a combination of these targets are often most effective, a further analysis is needed to further improve the field and gain better understanding of consumer behavior.

To accomplish this analysis, this thesis analyzes previous research of online targeting and the ways to communicate health-related messages. Ideally, both practitioners and academics will gain insight into the world of online advertising through two specific ways. The first type of knowledge that the project seeks is to discover how the public feels about healthcare advertising as whole. The second, and more important information this thesis hopes to discover is in which type of environment people engage with advertisements better than others, be it audience targeted websites or contextually

relevant content. In order to gain these insights, a review of literature regarding audience and contextual targeting, health communication, and information seeking will be reviewed. Finally, an experiment testing which of the two targeting options is more successful in a controlled setting will be conducted. This project finishes with an analysis of collected data and a discussion of the practical implications of the results for practitioners and academics who work and study in the field of advertising also that of healthcare.

## **CHAPTER 2: Review of the Literature**

### **Digital Media Usage**

Since its early creation in the 1960s the Internet, then ARPANET, has drastically evolved into what the average U.S. citizens knows today (Haigh et. al., 2015). Originally intended for government use, the development of the Internet drastically accelerated and now exists on smartphones able to be stored in one's back pocket. Personal uses of the Internet vary drastically from person to person, however one commonality is the use of digital media. From "Googling" information to seeking knowledge from credible news sites digital media is widespread, in particularly in the U.S. and other modernized countries. In fact, eMarketer reports that of the twelve hours and four minutes the average adult spends with major media, which primarily consists of digital, TV, radio, and print, that five hours and thirty-eight minutes is spent with digital (April, 2015). Digital, comprised of desktop/laptop, mobile, and other connected devices, accounts for almost half of the average adult's time spent with major media (eMarketer, 2015).

Additionally, the uses and gratifications theory proves prudent in the instance of the Internet and digital media usage as a whole, as the needs of one individual in comparison to another can vary drastically. Morris and Ogan (1996) first looked at applying the idea to digital media, specifically in its application to the idea that audience activity can be leisurely browsing or going online with an intent. This concept remains true today, as the Internet serves as both a source of knowledge and purpose, and also of casually looking at content and connecting with others. Lin (1999) further expanded upon

this theory for both television and online use. She found that there are five main motives for media consumption: entertainment, surveillance, escape/companionship, problem solving, and personal identity (Lin, 1999). While conducted over a decade ago, the foundation of Lin (1999)'s work remains solid as now in 2016 those same motivators for online media consumption to continually used today.

It is important to note the significance of the Internet on digital media, as clearly one would not exist without the other. Haigh, Russell and Dutton (2015) stated that, “even narrowly defined, the Internet of 2015 could not be understood without reference too a larger ecology of related media, communication, and information technologies, and all of their antecedents” (p.155). The idea of an ecology of related media is assuredly transferrable to that of digital media as a whole as we look at not only the organic content being consumed through this channel, but also that of how advertising has affected consumers of this medium, similar to as how marketing and advertising infiltrated print, radio, and TV.

### **The World of Digital Advertising**

While reading editorial content or perhaps even just browsing social media, online users are frequently served advertisements of an assorted variety. On one webpage alone, there may be an ad about a new checking accounting offered by a bank, an about pair of glasses recently browsed, and a pizza chain. Furthermore, these ads can be in the forms of display banners, skippable videos advertisements, promoted ads embedded into social media news feed, and more. However, despite the many types, something all advertisements have in common is that they can be served to the user in a variety of ways. Marketers and advertisers develop different plans and strategies on how to serve

advertisements to the desired group of individuals based upon the product or service being advertised, including general audience targeting in addition to that of contextual. While both strategies have great merit, they are each unique in the manner of which the advertisement is served to the ideal consumer, and audience targeting and contextual advertising approach from completely different perspectives.

### **Types of Targeting within Online Advertising**

**Audience Targeting.** Many consumers of digital media have their own browsing habits and favorite go-to websites that they use on a regular basis. For example, an 18-year-old student athlete might often visit ESPN.com, CBSSports.com, and Foxsports.com in addition to Facebook.com, tumblr.com, and hulu.com. Or, perhaps a twenty-five-year-old woman working in politics is planning her wedding and will often browse websites such as theknot.com, brides.com, pinterest.com, in addition to the websites she visits on a regular basis including the local TV station's website she usually gets her news from, politico.com, MSNBC.com, Foxnews.com, and Instagram.com.

Keeping in mind that consumers of digital media have online habits and topics that they frequently search, marketers and advertisers developed a strategy to target a specific group of individuals based on their media habits, such as the student athlete and the woman working in politics that were mentioned above. The industry calls this audience or behavioral targeting, and is defined by Bock and Poel (2010) as,

“online advertising [that] is adapted according to information that can be tracked online, including search term usage, clickstream data or historical visit patterns. Other personalization approaches can extend this approach by combining behavioral data with other sources of visitor information, including demographic information, user-specified preferences and website customization settings ...”(p.50).

Essentially, audience targeting looks at the individual as a member of a specific group of

people based on his or her preferences and also online behaviors. This can include demographics such as age and gender, the overall geographic location of the user, if he or she is married or with children. Moreover, Rimal and Adkins (2003) further define the concept of audience targeting, saying that, “audience segmentation is a process of dividing the audience into groups of individuals based on some meaningful criterion” (p. 498). Additionally, audience targeting uses the websites that users frequently visit to gather insights based upon the content available to the user on that particular webpage, as well as what websites that user is engaging with on a regular basis to learn about personal preferences.

Data aggregators have been able to use cookies and other tools to keep track of these specific websites visited by consumers of digital media. So, the webpages that the male student athlete and the female working in politics visited are now categorized into data segments such as “college athletes.” Additionally, by logging into websites that ask for the user to put in his or her age, data aggregators can also create groupings based on audience age. Now, the student athlete is placed into an age category with other 18 to 19-year-olds and the female working in politics is put into an audience age category of 25 to 30-year-olds. Based on the collective information provided by data aggregators, advertisers can leverage the data to serve the appropriately affiliated ads to the desired audience. For example, a national running shoe brand might serve the student athlete an ad linked to a specialized shoe for the sport he plays on Facebook.com.

All in all, audience targeting places advertising messages with an ideal customer of that product or service based on target characteristics which define them as part of the target audience. Moreover, it is within these specific audiences that we seek to gain a

better understanding of the relationship between gender and ad message recall. Berry et. al., (2011) discussed the impact of gender and age on the affect on information seeking, which can also be linked the idea of seeking out information, in this particular instance in regards to physical activity information. Building upon the foundation set by Berry et. al. (2011), the researcher seeks to confirm a hypothesis in direct relation to gender. **H1: Women will report remembering advertising messages more than men.**

**Contextual Advertising.** It is a well-known fact that the Internet supplies digital media users with a vast variety of available content ranging from sports, to academic sources, to information about different health concerns, to social media and so, so much more. The vast amount of options is a blessing but also a curse when trying to find information about a particular topic, as sometimes it can be difficult to locate a particular answer depending on the question being asked. Thankfully, with search engines like Google and Yahoo, it is easy for online users to find specific content that they wish to read about. One can simply go to a search engine, type “dermatologists in Missouri,” and be immediately shown links to several doctors who meet the criteria of the search, links about dermatology as a specialization of medicine, and even websites that show examples of what to be concerned about in regards to skincare.

Advertisers and marketers alike realized the potential in advertising on websites in which the content on the site is directly related to the product or service being sold in the advertisement. The matching of website content to that of the advertising subject is called contextual advertising, and Chun, Song, Hollenbeck, and Lee (2014) define it as a type of advertising, “in which marketers strive to develop customized images or texts more relevant to customers based on the content of web pages” (p.351). Essentially, in

contextual advertising, the advertiser creates ads and serves them to online users who are on websites that are related to the specific advertisement. For example, if an energy drink company develops a new type of beverage that is supposed to enhance sports players performance during a game, they can create a contextually relevant advertisement and purchase a placement on ESPN's homepage, or another sports related website, in order to connect the athlete with the sports drink.

Contextual advertising matches the advertisement to the content of the webpage in hopes that those who are reading the particular news story, blog, and excreta will also be in search of the product or service that is being promoted on the advertisement. For example, maybe an online user is reading an article about breast cancer on a national news website, and next to the editorial content is an ad for a local hospital that specializes in breast cancer treatment. Moreover, it has been argued that individuals who searching for information regarding a particular health related topic are often in the midst of making a decision in regards to that particular issue (Johnson, 1997). As such, by placing an advertisement on a contextually relevant website, in particular in regards to health behaviors and health communication as a whole, it can be served to a consumer who is potentially in the market for that particular product or service.

Similarly to the audience or behavioral targeting, contextual advertising can be done on a large scale, as advertisers are able to create lists of many content-related sites to serve to online users who may be interested in the product or service that the advertisement is offering to the consumer, and can have the ad served to this particular set of websites. Moreover, these lists can vary in popularity and notoriety of the website. Moreover, Wu Xi, Lu, Chen, Zhang, Y. and Zhang (2012) argue that, "one of the

important advantages of contextual advertising over the sponsored search is that it can support various types of web sites, which range from individual bloggers and small niche communities to large publishers (e.g., major newspapers)” (p.524). Essentially, advertisers are able to create lists of contextually relevant websites ranging from those of established entities such as the American Heart Association who writes a detailed article about the proper diet post-heart attack, to a short blogs from a recent heart-attack survivor who shares his or her recipes that are healthy for the heart.

After analysis of both audience and contextual targeting a question arises: **RQ1: Are messages presented through an advertisement and served in an unrelated content environment remembered more than that of related content relevant website?** By answering this research question, more data will be available to both the academic and profession realms. Ruben (2014) stated that,

“In the process of strategically pursuing explicit communication goals, impression and relationships emerge and evolve, creating the backdrop and context for future message-sending and message-receiving, and predisposing the parties involved to particular expectations, patterns, and outcomes” (p.4)

Keeping in mind the recently and relevance of the Internet, digital media, and in turn online advertising, it is important to continually study how advertisements are affecting consumers. Lastly, researchers must also study how these advertisements can be measured not only against those who consume them, but also in the world of marketing in order to attribute success.

### **Measuring Effectiveness in Online Advertising**

Now that a deeper understanding of available targeting of online advertisements through audience and contextual targeting, it is important to note how to measure the

effectiveness of said ad. The most commonly discussed method of this is advertising recall and advertising repetition, which work symbiotically as one's ability to remember the messaging an ad varies based upon the frequency in which the ad was viewed (Hornik and Yanovitzky, 2003; Pechmann and Steward, 1988). Pechmann and Steward (1988) define advertising repetition as, "the differential effects of each successive advertising exposure, i.e. on the differential effects of a given exposure within a sequence of exposures" (p.287). Essentially, advertising repetition correlates with the frequency an advertisement is exposed to a consumer, and how that frequency affects message recall. Schmidt and Eisent (2015) state that, "frequency and the number of advertising exposures...lead to optimal consumer response regarding attitudes and recall" (p.425). By maintaining an ideal set of times the advertiser serves the consumer with an advertisement, the consumer is more likely to remember the ad and have a pleasant attitude toward the brand.

Additionally, it is important to note how multitasking and coviewing can affect the consumption of advertisements. Both Angell et. al., (2016) and Bellman et. al., (2012) studied the effects of outside forces affecting advertising repetition and recall. Interestingly, both studies confirmed that these unrelated forces, be it multitasking or coviewing with additional people, affected the recall of the ad in a negative manner (Angell et. al., 2016; Bellman et. al., 2012). Specifically, Bellman et. al. (2012) found that in the instance of TV viewing, ads that were watched by multiple people at the same time were less effective than those viewed by an individual. Digital ads can also be seen as more effective in comparison to other media mediums, as ads online are most frequently viewed by solely one individual at a time rather than coviewing.

All in all, advertising repetition and recall is key in effective marketing, specifically in that of awareness campaigns. When looking at the combined set of digital and advertising, noting the effectiveness of brand awareness can sometimes be challenging as one does not always see the direct effect of a user's engagement through an action, for example a click of an ad. This in mind, brands have established other means of measuring success of online campaigns, such as more office visits to a hospital. Moreover, many studies and literature has been conducted to study the effect of healthcare marketing on consumers of all major media, but more so increasing on digital media mediums.

### **Healthcare Advertising**

Health communication is often a sensitive subject as a whole, but especially in regards to advertising health products and services. Keeping in mind the opinions of the online consumer, certain advertising companies have taken it upon themselves to set standards and regulations in order to not offend anyone using the websites. In fact, Facebook has extremely strict policies on what can and cannot be advertised to Facebook users. It will not allow images the promote specific body image, such as that of an overweight individual with advertisement text about losing 25 pounds to be served to users (Facebook, 2014).

Moreover, sometimes advertisements can be successful in helping the consumer become aware of whatever health concern he or she is having. Maybe the consumer has been avoiding getting the bump on his or her arm checked, or perhaps is thinking that it is nothing of serious consequence. However, if he or she sees an advertisement about a local dermatologist while also browsing skin care related content, things might change.

This advertisement along with so many others might alert the consumers that they need to speak with their health care provider when he or she might not have done so before seeing the ad (Beltramini, 2010). Essentially, the advertisement connects the consumer with the type of doctor he or she might not have realized was needed. Furthermore, the advertisement is linked to a website that can put the user directly in front of a phone number, or even an option to make an appointment online. Or, even if the consumer is not ready to make that kind of commitment to seeing a practitioner, it is possible that he or she can learn more about the symptoms they are experiencing to make a better decision if it is necessary to see the health care provider.

All in all, advertising on health-based issues can prove successful not only for the consumer, but also for the advertiser. Additionally, Beltramini (2010) argues that, “DTC [direct-to-consumer] research has helped both to empower patients and to provide insights for advertisers to better present to them the needed information in an appropriate format” (p.574). Seeing an advertisement, be it on a contextually relevant site or just a website that the consumer uses on a regular basis, allows the consumer to be in touch with the appropriate doctors or hospitals without having to call people or ask the opinions of family and friends. Moreover, using these audience-based and also contextual advertising, practitioners are able to put the consumer in direct contact with the healthcare provider who could help him or her with whatever they are suffering with in a very direct way.

### **Information Seeking and Scanning**

With the variety of options available online, users can consume digital media in a variety of ways through many different types of channels. While some Internet users

move around from website-to-website casually browsing, others go online with a specific purpose. With websites such as WebMD and Everyday Health, the Internet is commonly used to search for health content. The average person will use the Internet to find information regarding anything from a particular ailment to weight loss to self-diagnosing a cold compared to a sinus infection.

Clearly, with the impact that the Internet has on health behavior, it is important to study how consumers use digital media to learn about health concerns. Hornik, Parvanta, Mello, Freres, Kelly, and Sanford (2013) looked deeper into the use of digital media as a source of information for health content. Specifically, they looked at how people process information found through the use of online resources. Hornik and colleagues (2013) further developed the idea of information seeking and scanning. They define this as seeking and scanning as a process in which individuals will either seek out specific information from the text, or they will scan the information presented to them.

Moreover, Hornik et. al., (2013) studied seeking and scanning in regards to health related issues, and found that scanning often leads consumers to the adoption of health behaviors, which is also very useful when studying how advertising can be used as a form of health communication. Additionally, Hornik et. al., (2013) studied seeking and scanning of information on nonmedical sources, which is highly relevant for advertisers since the majority consumers who are served ads are sought out with audience targeting or contextual targeting. In both instances, it is highly unlikely that the websites visited by these individuals would be nonmedical in the terms that Hornik and colleagues identified.

Additionally, Berry et. al., (2011) built upon the idea for information seeking and scanning in the advertising world. Specifically, they looked at how gender and age

affected the individual's ability and desire to seek and scan health related content in regards to physical activity (PA). Berry et. al., (2011) states that, "our research showed demographic differences in who searches for PA-related information, where they search for it, and what advertisements are first recalled when asked about PA-related advertising" (p. 253). Thus, not only does the content and the messaging affect seeking and scanning, but also general population demographics of the target audience.

Clearly, there is more to learn in regards to seeking and scanning, specifically in regards to advertising. Ruben (2014) states that, "given the changing health care landscape, only a limited-and likely decreasing- amount of the communication that plays a role in shaping health care practices occurs directly between a professional provider and his or her patient" (p.5). It is apparent that the exploration of other means of communication and dissemination is necessary for the field of healthcare, and over time the disconnect between patient and doctor will become increasingly larger. After analysis of Ruben (2014) and of Hornik et. al., (2013) the researcher developed the following question: **RQ2: Does a need for healthcare information seeking and scanning increase the likelihood of remembering an advertising message?**

While searching for editorial context is assuredly different than searching or engaging with advertisements, it is important to note that these advertisement images are impactful on the viewers who see them. Even despite a consumer not necessarily clicking on the ad, simply viewing the message increases the likelihood of advertising recall. Moreover, the more frequently an ad is seen, the higher the likelihood that the consumer will be able to remember the messaging (Schmidt and Eisend, 2015). Consequentially, whenever the user comes in contact with the advertisement from

seeking or scanning, they are faced with a decision to click on the advertisement and be linked to the website of the doctor or hospital being advertised, or to conversely continue down the page or to a different website entirely. This in mind, the consumer needs to feel that the information generated from the advertising or the subsequent landing page will provide useful. LaRose et. al., (2001) states that, “we may agree that we use the Internet to obtain information, but this says nothing about the perceived likelihood of obtaining useful information in the future” (p. 401). By doing so, the consumer can engage in more of the content presented to them through the advertisement, and potentially make changes in his or her health behaviors as a whole, but also by pausing just to see the ad the consumer has now engaged with the branding message.

### CHAPTER 3: Research Design

An experiment was conducted to test the relationship between audience targeting and contextual advertising of a healthcare advertisement communicating flu season messaging. Below is the advertisement:



*Figure 1*

A Qualtrics survey was created and distributed through the use of Amazon Mechanical Turk (MTurk). Participants were recruited from the Midwest Region, defined as North and South Dakota, Nebraska, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Illinois, Indiana, Michigan, and Ohio (U.S. Census, 2016). After disqualifying those who completed the survey under one minute due to concern of the quality of work, those who passed this qualification were paid \$1.00 for their participation and completion of the survey.

After answering standard demographic questions around age, gender, and sex, participants were assigned to one of the groups: WebMD, Yahoo, and MSN. WebMD was selected to align with contextual targeting, as the subject matter on the page was directly related to cold and flu symptoms. Both Yahoo and MSN were selected based on a report from Nielsen Optimizing Report that provided a list of the highest indexing sites for individuals 25 and older within the Midwest (Nielsen, 2016). Both sites indexed

within the top 10 of the site list, and similar content in regards to the upcoming 2016 Presidential election were prevalent on the page. Having a variety of both Yahoo and MSN allowed for higher likelihood that the participants had visited either one of each of those to adhere to the general parameters of audience targeting, which were discussed at an earlier point in the review of literature.

### **Information Seeking and Searching**

Building upon the foundation built by Hornik et.al. (2013), Stephens, Rimal, and Flora (2004) created a composite measure to operationalize information seeking and scanning. This question set was three parts, and asked individuals how often they read the following:

1. health and doctor's columns
2. news articles on health
3. food and recipe information

This was based on a 5-point scale ranging from "ignored" to "read all" and Stephens et. al., (2004) reported an average alpha of .78. This allowed participants to review rate on the scale how often they read health related content online, further reiterating the information seeking and searching component of the study. This was then computed into a variable called "info seeking" and analyzed as a set in comparison to other variables.

**Digital Media Use.** First, an analysis of general media exposure was conducted using a measure from the National Survey of Parents and Youth [NSPY] (Lee, et. al., 2008; Vandewater, E., and Lee, S., 2009). Participants were first asked how often within the past six months they had used the Internet, ranging from never to everyday or almost everyday. This allowed individuals to notate how often they used the Internet on a regular

basis. Next, the participant was asked on a Likert scale if they strongly agree or disagree with the statement of “I am likely to click on a digital advertisement” and “I am likely to click on a healthcare advertisement.” This was asked to gain a deeper understanding of how individuals are consuming digital media, and moreover how often he/she engages with digital advertisements. Specifically, the question sought to discover how often individuals engaged with healthcare advertisements as well as general digital ads.

**Interaction with Online Advertisements.** Lastly, the participant was shown an image of the flu season advertisement and asked, “Have you ever seen this ad before?” and provided with options for answering: yes, maybe, no (Southwell, et. al., 2002; Bellman et. al., 2012). This question was showed very last as to not prime the participant to exposure of the ad before answering the related healthcare questions. Lastly, this question was used to measure how often some did or did not remember seeing the advertisement.

## CHAPTER 4: Research Data

An experiment was conducted through the use of Amazon Mechanical Turk in the Midwest region, defined as North and South Dakota, Nebraska, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Illinois, Indiana, Michigan, and Ohio (U.S. Census, 2016). 120 participants were recruited, ranging in age from 20 years old to that of 67 ( $M=35.15$ ). 57.5% of the sample was Male, and 42.5% was Female. 94.2% of the sample was Caucasian, with the second most populous race being African American at 4.2%.

### **Adverting Recall Based on Placement**

The primary goal of this study was to gain a better understanding of how ad placement affects an individual's ability to remember an advertisement. RQ1 asked, "are messages presented through an advertisement and served in a unrelated content environment remembered more than that of related content relevant website?" A logistic regression analysis was conducted to predict advertising message recall using placement as a predictor. Yahoo and MSN were created into dummy variables, leaving only WebMD as the primary variable for analysis. A test of the full model against a constant only model was not statistically significant, indicating placement of an advertisement does not affect an individual's ability to recall ad messages ( $\chi^2 = 5.378$   $p = .146$   $df = 3$ ). Nagelkerke's  $R^2$  reported .063 resulting in a severely weak relationship between placement and message recall.

While noting that the overall test did not prove statistically significant, there are some key takeaways from the data distribution. It is important to note that of the three conditions, WebMD, Yahoo, and MSN, WebMD reported the lowest p-value, equaling .104 in comparison to that of .240 and .665 respectively. Moreover, upon a crosstabs analysis of the placement by if the individual remembers seeing the ad, participants who were served the WebMD placement (condition 1) reported “maybe” seeing the ad double the time as Yahoo (condition 2) and MSN (condition 3). This distribution can lead to further research in regards to advertising placement, those in the WebMD likely reported maybe since the advertisement messaging directly related to the flu, which also related to the content the page they were exposed to earlier in the experiment.

Table 1				
<i>Have You Ever Seen This Ad?</i>				
<u>Response</u>	<u>WebMD (1)</u>	<u>Yahoo (2)</u>	<u>MSN(3)</u>	<u>Total</u>
Yes	7	14	12	33
Maybe	8	3	3	14
No	24	24	25	73
Total	39	41	40	120

### **Advertising Recall Based on Age**

A logistic regression analysis was conducted to predict advertising message recall using age as a predictor. A test of the full model against a constant only model was not statistically significant, indicating that age is a not predictor of advertising message recall (chi square = 10.334,  $p = .104$ ,  $df = 5$ ). Nagelkerke’s  $R^2$  of .119 indicated a moderate relationship between predication and grouping. Noting the lack of statistical significance, it is interesting to look at how age affected one’s ability to remember the message. Of the distribution, over 70% of the “maybes” reported was from ages 30 and older. Moreover,

the age that reported the most “yes” response when asked message recall was 28 year olds. Conversely, ages 23, 24, 25, 27, and 28 also reported the most “no” answers to message recall. It is interesting to note that that while people of all ages engage with digital advertisements, the most definitive answering demographic from the sample was those under 30 years old.

### **Advertising Recall Based on Gender**

A logistic regression analysis was conducted to predict advertising message recall using gender as a predictor. A test of the full model against a constant only model was statistically significant, indicating that gender is a predictor of advertising message recall (chi square = 10.334,  $p < .05$ ,  $df = 5$ ). Nagelkerke’s  $R^2$  of .119 indicated a moderate relationship between predication and grouping.

This statistical relevance confirms Hypothesis 1, “women will report remembering advertising messages more than men.” This is specifically important for healthcare marketing, as often times women are the household decision maker, in particular for that of healthcare decision makers. As marketers are continually searching for means to make their strategies most effective, it is important to note that women should be high in the consideration set for healthcare marketing.

### **Information Seeking and Advertisement Recall**

A composite variable for Information Seeking was created to be inclusive of all three questions used by Stephens, Rimal, and Flora (2004). This test seeks to answer research question 2, “does a need for healthcare information seeking and scanning increase the likelihood of remember an advertising message?”

A logistic regression analysis was conducted to predict advertising message recall using information seeking as a predictor. A test of the full model against a constant only model was not statistically significant, indicating that information seeking is not a predictor of advertising message recall (chi square = 10.526,  $p = .689$ ,  $df = 6$ ). Nagelkerke's  $R^2$  of .121 indicated a moderate to low relationship between predication and grouping.

While the logistic regression did not prove statistically significant, it is interesting to note that individuals reported “read a little” or “read some but not all” in regards to how often he/she reads health and doctor's columns accumulated to 78.3% of the sample. Similarly, individuals reported “read a little” or “read some but not all” of news articles on health equated to 78.4% of the sample population. All in all, the sample was not highly engaged with digital media content on healthcare despite 96.7% reporting to use the Internet every day or almost everyday within the past 6 months.

### **Digital Media Use and Advertisement Acceptance**

Of the overall sample, 98.4% reported using the Internet either every week, almost everyday, or in fact everyday. The same sample reported, “strongly disagree” or “disagree” to the likelihood of engaging with an advertisement. Moreover, 53.4% of the sample said that they, “strongly disagreed” or “disagreed” with the statement, “I am likely to click on a healthcare advertisement.”

## **CHAPTER 5: Discussion**

All in all, it is important to note that mass media campaigns can have both direct and indirect effects on health behavior (Wakefield, Loken, and Hornik, 2010). In the world of advertising, this translates to the potential that an ad has to affect someone directly if the individual clicks or uses the advertisement to find more information. Or, if the consumer continues to see the advertisement, and then later on makes a decision based on that particular message. As such, there is great relevance in studying the most successful means of running an online health campaign. Campaigns in the digital media space are especially important as more and more consumers are spending a significant amount of time online. Moreover, many health campaigns target individuals through the use of audience targeting and contextual advertising.

### **Advertisement Placement**

This project sought to examine if audience targeting compared to contextual advertising is more effective for advertisements regarding health communication. By doing so, not only will advertisers be able to run more effective campaigns, but also the consumer will be able to be served advertisements that are relevant to his or her health needs. Ruben (2012) called for further research in how to communicate health messages between patient and doctor, stating that,

“[there is a] need for broader focus on human communication systems and the way patients and family members make sense of and respond to the vast array of health and wellness-related messages that inundate them on a daily basis” (p.9).

While assuredly a different medium than previous communications, the use of advertisements to disseminate information on a widespread level can surely assist in the

process of informing patients of potential ailments, treatments, or even just a doctors visit.

However, upon analysis statistical significance was not found for the primary research question of the study. Despite a lack of significance, there are many things to address from the findings of the study. Further analysis and questioning could lead to more confirmed answers, but after looking at the present data WebMD was the closest to statistical significance across the three websites (WebMD, Yahoo, MSN) which alludes to the idea that content on a webpage does affect advertising message recall.

Interestingly, this information could still support the increased use of contextual advertising, specifically aligning with the ideal that an individual is constantly being bombarded with messages, and by aligning these messages it could further increase ad recall or at the very minimum improve advertisement recognition, and in turn leads to more brand familiarity (Ruben, 2014).

Moreover, it is important to look at advertising recall and repetition in this specific instance. Despite a condition set up by the researcher in which each participant remained on the page containing the ad for at least five seconds, only a small fraction of the sample remembered seeing the ad (n=33). While outside influences could have affected the outcome (see limitations section), this could also refer back to the idea of advertisement repetition. Scholars have confirmed that advertising repetition does affect how the consumer internalizes the messaging (Schmidt and Eisend, 2015; Karekalas et. al., 2015). In this experiment the participant viewed the advertisement twice: one in-feed, the second in the questions section at the very end. This in mind, the lack of repetition and also the quickness in which the participant was asked to recall the message may have

assisted with the inability to recall the message. Hornik and Yanovitzky support this assessment as well, stating, “specify the appropriate lag between exposure and effect and whether the effects will slowly increase over time” (p. 213). Perhaps if shown the ad a second time before questioning recall, responses levels may have increased more towards higher ad recognition.

### **Audience Segmentation**

Conversely, it is also important as marketers to know who the target audience is, and also how to reach them through the use of audience targeting. It was found statistically significant that gender affects advertising message recall. This was also confirmed by Berry et. al. (2011) when looking at physical activity ad recall. This is important, specifically in terms of healthcare marketing, as women are often the healthcare decision makers and tend to make the decisions in terms of where to take a child to a doctor, and to also encourage a significant other or parent to visit the hospital in certain circumstances.

Another component of knowing the target audience is to address age. The study found that after age 30, the ability to remember if he/she did or did not in fact see the advertisement dropped significantly. This can also have a direct correlation to how the younger generation is using media in comparison to that of an older generation, who has less experience with digital and who perhaps are not as in-tuned to everything on a webpage.

Interestingly, over 98% of the participants reported using the Internet every week, almost everyday, or in face every single day. Due to the high volume of responses with these answers, the uses and gratification theory as discussed by Morris and Ogan (1996)

and Lin (1999) are still relevant today. However, the way people are using the digital media has changed since the late 1990s with the introduction of social media and increased availability of sites online.

### **Information Seeking and Scanning**

In regards to information seeking and searching, the data showed no significant relationship between seeking and advertising recall. However, the majority of the sample reported having low seeking and searching tendencies, in particular to that of healthcare. This is especially interesting, as healthcare marketers need to be aware that individuals are not utilizing online resources as much as perhaps otherwise thought to do so. However, this can also be an opportunity to help educate those users who would not ordinarily use online media as a health resource.

While not necessarily using the Internet for health information seeking, the research participants did report a high level of Internet usage holistically. This is important to note, as while not directly inquired of the participant, this high of usage does indicate also a high amount of exposure to ads as they are over the majority of the Internet. Consequentially, this could also explain the high response rate of individuals not interacting with advertisements, specifically those of healthcare ads. If users are online so often, and being exposed to many, many advertisements, then this could potentially desensitize users from advertisements.

### **Conclusion**

All in all, this study has provided several insights to the world of digital advertisement, and also how individuals are seeking and scanning in an online environment. Interestingly, the article by Stephens, Rimal, and Flora (2004), which was

the study used to support the information seeking scanning measure, argued primarily for more channels of dissemination of health information. While Stephens et. al., (2004) studies the effects of a physical community of individuals on health campaigns, the idea of the Internet and of digital media as a community can also be applied to the field of healthcare research. Moreover, the different means of finding information, be it healthcare related sites or be it news sites, can also serve as micro communities within the digital space. Future research will only help to provide further clarity and information in the field of marketing and advertising, and help both academic and marketers alike.

### **Limitations**

As it stands, the lack of statistical significance proved that perhaps the website in which an advertisement is served does have less affect on advertising recall message than originally predicted. However, it is important to take into account limitations with considering this lack of statistical significance. The most apparent limitation of this study was the lack of real-life environment. While showing screen grabs of the websites that are often used by consumers, be it for health research or be it for general usage, the images shown in this study are not fully representative of a web environment that the user would engage with organically.

Additionally, this study was not the only study to confirm that there was not significant ad recall amongst the majority of participants, as Angell et. al. (2016) also had similar findings, specifically when looking at the idea of multitasking affective advertising recall. Multitasking could very strongly have influenced advertising message recall since participants were recruited using Amazon Mechanical Turk. It is suggested

that future studies look into using a laboratory or more controlled setting ensure that no multitasking is happening during the study.

Moreover, it is important to note that for the purposes of this study, only display banners were used. Future studies should look at the effect of social, native, and video advertisements in the world of healthcare advertising, which further expands upon Stephens et. al., (2004) idea of multiple channels for health communication.

### **Recommendations for Future Research**

Future studies analyzing high information seekers who use digital media on a regular basis users could provide interesting insight to how those who are engaged with health content online interact with healthcare advertisements. A pre-test to analyze who is in fact a high information seeker could be conducted, and those who qualified at a certain level of seeking could move forward as a qualified information seeker in order to test how high seeks engagement with advertisements.

Moreover, further analysis on how women of different race and ethnicities could provide interesting insight as women have proven to have higher advertising message recall.

## REFERENCES

- AdAge. (1999). "Ad Age Advertising Century: Timeline." Retrieved from: <http://adage.com/article/special-report-the-advertising-century/ad-age-advertising-century-timeline/143661/>
- Angell, R., Gorton, M. Sauer, J., Bottomley, P., White, J. (2016). Don't distract me when I'm media multitasking: toward a theory for raising advertising recall and recognition. *Journal of Advertising*, 45 (2) 198 -210 DOI: 10.1080/00913367.2015.1130665
- Bellman, S. Rossiter, J., Schweda, A., and Varan., D. (2012). How coviewing reduces the effectiveness of TV advertising. *Journal of Marketing Communication*, 18 (5), 363 – 378 DOI: 10.1080/13527266.2010.531750
- Beltramini, R. (2010). DTC advertising's programmatic research and its effect on health communication. *Health Communication*. 25, 574-575. DOI: 10.1080/10410236.2010.496770
- Berry, T., Spence, J. Plotnikoff, R., & Bauman, A. (2011). Physical activity information seeking and advertising recall. *Health Communication*, 26 (3), 246 – 254 DOI: 10.1080/10410236.2010.549810
- Bock, K. and Poel, D. (2010). Predicting website audience demographics for web Advertising targeting using multi-website clickstream data. *Fundamenta Informaticae* 98, 49–70 DOI: 10.3233/FI-2010-216
- Census Regions and Division of the United States. (2016) U.S. Census. Retrieved from [www.2census.gov/geo/pdfs/maps-data/reference/us\\_regdiv.pdf](http://www.2census.gov/geo/pdfs/maps-data/reference/us_regdiv.pdf)
- Chun, K., Song, J., Hollenbeck, C., and Lee, J. (2014). Are contextual advertisements effective? The moderating role of complexity in banner advertising. *International Journal of Advertising*, 33(2), 351-371. DOI: 10.2501/IJA-33-2-351-371
- eMarketer (2015), April 16). "US Adults spend 5.5 hours with Video Content Each Day." Retrieved from: <http://www.emarketer.com/Article/US-Adults-Spend-55-Hours-with-Video-Content-Each-Day/1012362>
- eMarketer (2014, April 22). "Mobile Continues to Steal Share of US Adults Daily Time Spent with Media." Retrieved from: <http://www.emarketer.com/Article/Mobile-Continues-Steal-Share-of-US-Adults-Daily-Time-Spent-with-Media/1010782>
- eMarketer (2014, December 10). "Advertisers will Spend Nearly \$600 Billion Worldwide in 2015." Retrieved from: <http://www.emarketer.com/Article/Advertisers-Will-Spend-Nearly-600-Billion-Worldwide-2015/1011691>

- Facebook. (2014). Guidelines for Advertised Products and Services. Retrieved from: <https://www.facebook.com/help/399392800124391/>
- Haigh, T., Russell, A., and Dutton, W. (2015) Histories of the Internet: introducing a Special issues of information and culture. *Information & Culture*, 50 (2), 143-159 DOI: 10:7560/IC50201
- Hornik, R. and Yanovitzky, I. (2003). Using theory to design evaluations of communication campaigns : the case of the national youth anti-drug media campaign. *Communication Theory*, 13 (2), 204 – 224 DOI: 10.1111/j.1468 2885.2003.tb00289.x
- Hornik, R. Parvanta, S. Mello, S. Freres, D., Bridget, K. and Schwartz, J.S. (2013). Effects of scanning (routine health information exposure) on cancer screening and prevention behaviors in the general population. *Journal of Health Communication: International Perspectives*, 18 (12), 1422-1435. DOI: 10.1080/10810730.2013.798381
- Jack. (2015). Retargeter Blog: An Introduction to Programmatic Buying. *Retargeter*. Retrieved from: <https://retargeter.com/blog/strategy-2/programmatic-buying-intro>
- Johnson, J.D. (1997). *Cancer-related information seeking*. Cresskill, NJ: Hampton Press.
- Kareklas, I., Muehling, D., Weber, T. (2015). Reexamining health messages in the digital age: a fresh look at source credibility effects. *Journal of Advertising*, 44 (2), 88-104 DOI: 10.1080/00913367.2015.1018461
- LaRose, R., Mastro, D., and Eastin, M. (2001). Understanding Internet Usage. *Social Science Computer Review*, 19 (4), 395 – 413 DOI: 10.1177/089443930101900401
- Lee, C., Hornik, R., and Hennessy, M. (2008). The reliability and stability of general media exposure measures. *Communication Methods and Measures*, 2 (1) 6 – 22 DOI: 10.1080/19312450802063024
- Leshner, G., Hensel, B., and Logan, R. Consumer Health Informatics Research Resource. <https://chirr.nlm.nih.gov/>
- Lin, C. (1999). Online-service adoption likelihood. *Journal of Advertising Research*. 39 (2), 79 – 89
- Morris, M & Ogan, C. (1996). The Internet as a mass medium. *Journal of Communication*, 39, 78-89 DOI: 10.1111/j.1083-6101.1996.tb00174.x
- Nielsen Optimizing Report – Audience Targeting - Midwest. (2016). Nielsen Holdings.

- Pechmann, C. and Stewart, D. Advertising repetition: a critical review of wearin and wearout. *Current Issues and Research in Advertising*, 11 (2) 285 – 329  
DOI 10.1080/01633392.1988.10504936
- Rimal, R., Adkins, A. (2003). Using computers to narrowcast messages: the role of audience segmentation, targeting and tailoring in health promotion. *Handbook of Health Communication*. pp. 497 – 513
- Ruben, B. (2014). Communication theory and health communication practice: the more things change, the more they stay the same. *Health Communication*, 31(1), 1 –11  
DOI: 10.1080.10410236.2014.923086
- Schmidt, S. and Eisend, M. (2015). Advertising repetition: a meta-analysis on effective frequency in advertising. *Journal of Advertising*, 44 (4) 415-428  
DOI: 10.1080/00913367.2015.1018460
- Stephens, Keri, Rimal, Rajiv & Flora, June. (2004). Expanding the reach of health campaigns:community organizations as meta-channels for the dissemination of health information. *Journal of Health Communication*, 9:S1, 91 – 111, DOI: 10.1080/107010730490271557
- Vandewater, E., Lee, S. (2009). Measuring children’s media use in the digital age. *American Behavioral Scientist*, 52 (8) 1152 – 1176 DOI: 10.1177/000276420931539
- Wakefield, M., Loken B., and Hornik, R. (2010). Use of mass media campaigns to change behavior. *The lancet*. Vol. 376, 1261-71. DOI:10.1016/S0140-6736(10)60809-4
- Wu, Z., Xi, G., Lu, G., Chen, E., Zhang, Y. and Zhang, H. (2013). Position-wise contextual advertising: placing relevant ads at appropriate positions of a web page. *Neurocomputing*, 120, 524-535.  
<http://dx.doi.org/10.1016/j.neucom.2013.04.018>

## APPENDIX

### Survey Questions:

1. I am at least 18 years old to participate in this study.
  - a. Yes
  - b. No
2. What is your age?
  - a. Slider of ages 18+
3. What is your sex?
  - a. Male
  - b. Female
4. What is your race?
  - a. White/Caucasian
  - b. Hispanic
  - c. African American
  - d. Asian
  - e. Other

5. Ad Placement Images for MSN, Yahoo, and WebMd Inserted Here
6. How frequently do you read the following?
  - a. Health and Doctor's columns (ignore – read all)
  - b. News Articles on Health (ignore – read all)
  - c. Food and Recipe Information (ignore – read all)
7. How often have you used the Internet in the past 6 months?
  - a. Scale 1 – 5 (never – everyday or almost every day)
8. How much do you agree or disagree with the following statements?
  - a. I am likely to click on a digital advertisement (Likert Scale 1 – 7)
  - b. I am likely to click on a healthcare advertisement (Likert Scale 1 – 7)
9. Have you ever seen this ad?

**FLU SEASON IS IN FULL SWING.  
WE'RE HERE TO HELP.**

 Health Care

**MAKE AN APPOINTMENT**

- a. Yes
- b. Maybe
- c. No