Information Overload: The effects of advertising avoidance on brand awareness in an online environment

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ABSTRACT

When information overload occurs, an individual consumes information at the expense of other information. Advertising avoidance, or banner blindness, is a protective mechanism that can be triggered when an individual receives too high an informational load. This study uses methods developed from information overload theory, selective attention studies, information entropy and information redundancy to seek the connection between information overload and banner blindness. In aiming to measure the overall effect that these two phenomena have on brand awareness and individual’s ability to recall an ad from a web browsing session, this study relies on prior work in the area of information overload, banner blindness, brand awareness, and ad recall. The researcher has measured a browsing session in which two groups of participants are engaged in a task-oriented browsing session containing either high or low levels of information. It was found that high levels of information in an online environment could reduce the likelihood of noticing or recalling the contents of online advertisements.
We the undersigned, certify that we read this thesis and approve it as adequate in scope and quality for the degree Master of Arts.

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Chapter 1. INTRODUCTION

Statement of the problem

For an organization, building brand awareness through digital interactions has become one of the most important strategies of a marketing plan. Organizations are not simply trying to create a single buying opportunity for a consumer but rather increase that consumer’s recognition and familiarity with an organization and the product or service in which it provides. The idea of online advertising banners was once a novel and somewhat successful practice. However, over the evolution of the World Wide Web, user interface and the individuals perception of online environments, digital advertisements are starting to near toward the realm of obsolete. A large part of today’s state of digital advertisements could be due to the fact that there is simply too much going on in a digital environment for one person to fully absorb, known as information overload. This could lead to a decrease in the perceived quality of a message or a complete negation of the message to begin with, which in turn is working against brand awareness. A phenomenon known as advertising avoidance, more specifically, banner blindness, has increasingly created a disconnect between an organization and its target audience in a digital environment. Lincoln (2011) asserts “the resulting abundance of — and desire for more (and/or higher quality) — information has come to be perceived in some circles, paradoxically, as the source of as much productivity loss as gain” (“FYI: TMI,” 2011). This phenomenon and its effects on users of a digital medium has led to pose the following question: When considering brand awareness in a digital environment what are the effects of advertising avoidance and how do these effects limit brand awareness and an individual’s ability to recall an ad?

Importance of the study
The purpose of this study is to provide further insight to initial observations to the cause of banner blindness, a phenomenon that prevents users of a digital medium from observing the advertisements on that medium. While prior studies and observations have found that banner blindness occurs more frequently during task-oriented browsing when compared to aimless browsing, this study aims to collect data on individuals engaged in task-oriented browsing while encountering different levels of informational load. Ultimately, this study aims to find whether or not information overload creates a situation of banner blindness and affects an individual’s brand awareness and ability to recall advertisements. One expectation of this study is that the findings will provide statistics that could be useful for future researchers in this area. Another aim of the study is to aid marketers who are searching for the most efficient practices of presenting advertisements to an audience engaged in a digital medium such as the World Wide Web.

**Definitions of terms used**

In order to avoid any confusion for the reader, the following list of terms used throughout this paper are defined.

**Ad Recall** - A process of measuring advertising effectiveness in which a sample of respondents are exposed to an ad, and then at a later date, are asked if they can recall it ("Earthbound Media Group," n.d.).

**Advertising Clutter** - A state or condition of confusion or disorderliness; where audiences are continually bombarded by advertisements (Shimp, 2010, p.152).

**Attentional Resources** – Applying one’s mind to something, mental concentration,
awareness; concept becomes necessary because we do not process all stimuli that impinge upon us (Oxford English Dictionary). The amount of attention an individual can give to a specific task at hand before neglecting other elements and aspects of something.

**Banner Blindness** – A phenomenon when a specific, obvious element in an online environment intended to be seen by a consumer is intentionally or unintentionally being missed (Benway, 1999, p. 3).

**Brand Awareness** – The extent to which consumers are familiar with the distinctive qualities or image of a particular brand of goods or services (Oxford English Dictionary).

**Computer Mediated Communication** - any communicative transaction that occurs through the use of two or more networked computers (McQuail, 2005).

**Information Overload** – When the amount of input to a system exceeds its processing capacity (Milford & Perry, 1977, p. 132).

**Selective Attention** – Focusing attention on goal-relevant stimuli while ignoring irrelevant distractors (Lavie et al., 2005, p. 339)

**Organization of Remaining Chapters**

The first chapter has discussed an identification of the problem of information overload and its effect on banner blindness. This chapter also discusses the importance
of this study and provides implications for further studies and concerns in this area. The second chapter will review the philosophical and ethical assumptions under which this study operates, lay out the theoretical framework that this study is developed on, and review the previous works that have helped to build a foundation for this study by viewing this topic and similar topics. Chapter two will also provide the rationale for this study based on the aforementioned literature. Chapter three will provide the scope and methodology of this study and provide validity and reliability of the measures used in this study. The fourth chapter contains the study, the results of the collected data and further findings as a result of data analysis. The fifth and final chapter of this study, discusses conclusions, further recommendations and the limitations of this study. Following chapter five are the references and appendix.
Chapter 2. REVIEW OF THE LITERATURE

Philosophical and ethical assumptions

This paper operates under the philosophical assumption that information overload is a problem in that it ultimately limits the quality in decision made by a consumer. It also assumes that a specific form of advertising avoidance, namely “banner blindness,” does in fact exist as proven by the previous scholarship of J.P. Benway (1999), Speck & Elliott (1997) and Pagendarm & Schaumberg (2001). Kovach (2010) asserts “as people consume increasing amounts of information in the form of news stories, e-mails, blog posts, Facebook statuses, Tweets, Tumblr posts and other new sources of information, they become their own editors, gatekeepers, and aggregators of information (p. 7).” When one becomes an editor, gatekeeper or aggregator of the information they seek, they then choose to consciously or subconsciously avoid the information that they do not find pertinent to the goals or tasks in which they are trying to achieve. As a result of an individual neglecting certain elements of information, an organization’s brand awareness and brand equity are then at risk.

Habermas believes that people within a given culture or community can essentially agree on the good they want to accomplish and eventually people develop the practical wisdom on how to achieve that good (Griffin, 2008, p. 420). It can be universally agreed upon that advertisements are not necessarily bad, nor pose any major risk to the consumption of information. However, the way in which individuals consume advertisements juxtaposed with the informational task they are trying to achieve can be improved.

Clifford Christians feels that mutuality is the essence of humanism and that when
people are engaged in relations, they are “most fully human.” Christians states:

A moral community demonstrates more than mere interdependence, it is characterized by mutuality, a will-to-community, a genuine concern for the other apart from immediate self-interest . . . . An act is morally right when compelled by the intention to maintain community of persons; it is wrong if driven by self-centeredness. (Griffin, 2008, p. 422)

Consuming information through the World Wide Web is a mutual transaction between and individual and the distributors of the content and advertisements in which they are absorbing. In the same way that the news media has an obligation to not betray public trust, organizations distributing advertisements also have that same obligation. An advertisement must maintain an efficient message to its audience while remaining non-invasive. In the same way that Christians asserts that a reporter’s aim must be shaped by community norms, an advertisement must also be shaped by community norms. An advertisement is more than merely information on a product, but rather an attempt to establish a relationship between two parties.

**Theoretical Framework**

Information overload theory asserts that when an individual receives too high a load of information, the absorption of a given piece of information is at the expense at another piece of information (Schneider, Dumas, Shiffrin, 1984). This is a cognitive concept in which the human brain literally receives too much information to handle at one time, thus reducing the quality or individual realization of any given message. Information overload has also been found as a social phenomenon in looking at
multitasking and distractions. This infers that information overload is not just a problem of an individual’s reception of messages from a single medium but rather that outside forms of media and noise can also potentially take a toll on the load capacity of an individual. Neuman (2010) suggests that “scarcity of time” is also a contributing factor to information overload. This suggests that the informational load received by an individual can be at too great a pace, leaving messages to be neglected or ignored simply because an individual in an online environment does not have the time to absorb the full amount of information that is presented. In the realm of organizational communication and marketing, information overload is commonly considered to be a problem as it spawns other phenomena that limit the consumer’s ability to receive messages, such as advertising avoidance (“Appraising information abundance,” 2010).

Advertising avoidance suggests that consumers are either consciously or subconsciously ignoring advertisements from a given medium. More specifically, “banner blindness,” coined by J.P. Benway (1999) as a specific, obvious element in an online environment intended to be seen by a consumer is intentionally or unintentionally being missed (p. 3).

In connecting information overload to ad avoidance it seems that when an individual becomes engaged in an online environment, they enter into a designed environment in which several pieces of information are strategically placed throughout a page. However, in a browsing session, if an individual pays most attention to the task or goal at hand by engaging in the user controlled content (articles, pictures), they will exceed their capacity of load and either ignore or fail to recognize what they perceive to be less important elements on the page. This leaves advertisements throughout the page
as overload. The individual will often know that an advertisement is there and make a conscious decision not to view it, or completely miss the advertisement all together. In this sense, an individual then becomes “banner blind” through either a voluntary or involuntary form of advertising avoidance.

The Literature

Defining the problem of Information Overload

In defining information overload, there are several scopes of definitions and theories. Milford and Perry (1977) assert, “Information overload occurs when the amount of input to a system exceeds its processing capacity… Consequently, when information overload occurs, it is likely that a reduction in decision quality will occur” (Speier et al., 1999, p. 338). In understanding Milford and Perry’s definition of information overload, one must also look at the problem that it creates on a consumer in an online environment. Overload theory proposes that, when an individual is overloaded with too many advertisements at one time, the absorption of one piece of information will be at the expense of another piece of information (Schneider et al. 1984). This suggests that user controlled content such as an article could be favored information over an advertisement on the top or side of the page.

In looking at the immediate problem of information overload in an online environment, Anderson and de Palma (2003) explored the effects of spam (junk email) and digital advertisements in an attempt to define the problem that information overload creates. The authors infer that the problem does not necessarily lie within the messages that are being sent but rather the volume of sent messages directed at a single individual. Too many messages can create a problem in regard to consumers’ attention and the way
in which these commercial messages are lost in trying to reach these consumers. The authors suggest “a spammer can send 650,000 messages in an hour, at virtually no cost: spam filters cause people to lose possibly important messages, or even valid commercial offers that they might have taken up had they not been lost in a swamp of other propositions” (p. 2). This suggests that a technological attempt to filter out messages of lower importance can create a situation where important messages are inaccurately filtered.

The problem with receiving too many messages to process leads to a lower attention span for any given message, thus automatically reducing the quality or level of attention given to that message. Anderson and de Palma also state:

if the recipients are examining all messages received, they will receive fewer messages. There is a social loss on this account due to a reduction in socially beneficial transactions. However, if receivers do not examine all messages, they continue to receive messages now receive better quality messages in the sense that the average quality they receive increases (p. 2).

In assuming that the cost of sending a message should equal the expected benefit for the sender (p. 3), Anderson and de Palma find three types of outcome: recipients receive more messages than they examine, they examine all messages received, or they receive no messages. Anderson and de Palma’s work focuses on the congestion of messages and the quality of message based on the volume examined by the recipient. The authors ultimately find that the more messages received by an individual, the lower the quality of message.

One specific occurrence of information overload can be through advertising
clutter. Ha and McCann (2008) define advertising clutter as the “presence of a large amount of non-editorial content in an editorial medium” while Michael Fisker (2012) asserts “when an editorial media vehicle is perceived to be cluttered by non-editorial content (mainly advertisements), an avoidance strategy is triggered by the consumer/person exposed to the advertisements as a defense mechanism to protect him/herself from exposure and informational overload” (p. 5).

Ha and McCann focus on the subjective nature of advertising clutter and the influential factors that affect consumers’ perception of advertising clutter. The authors’ work asserts that:

By being in a cluttered media environment, advertisers believe that their advertisements will receive less attention from consumers for the following reasons. First, consumers will be irritated by the advertisements and subsequently avoid the ads altogether. Second, consumers simply won’t be able to remember the ads if too many are presented at the same time, because of their limited memory capacity (Ha and McCann, 2008, p. 571).

Another approach to information overload theory is exploring information overload from a social context. Some aspects of information overload that Anthony Lincoln looks at are multi-tasking and interruption. Lincoln (2011) states that “interruptions and distractions, also examined in overload analyses, can be considered analogous to the context switch that a computer must undergo every time it sets aside one task and returns to another. Each of these limitations brings a quantifiable cost to bear on the individual’s information processing capacity” (“FYI: TMI,” 2011). In an attempt to
multi-task, a message can become lost in translation. Neuman (2010) suggests “the key variable turns out not to be an abundance of information but rather a scarcity of time” and “the evolved human cognitive system has an extraordinarily sophisticated capacity for ignoring, filtering, and occasionally purposefully selecting information” (“Appraising information abundance,” 2010).

In looking at distractions and multitasking, a study of multitasking between two different mediums, television and computer, by Brasel and Gips (2011), the authors found that 22.6 percent of computer gazes were less than 1.5 seconds while 49 percent were less than 5 seconds and 64.5 percent were less than 10 seconds. Compared to television, computer attention had a larger portion of extended gazes. 7.4 percent lasted longer than 60 seconds and 2.9 percent were longer than 1 minute (p. 530).

Carrie Lee, in tying together the theory of information overload and the idea of advertising avoidance or banner blindness asserts:

banner blindness and information overload are studied in the field of human-computer interaction because they bring up a contradiction with the long-believed theory that in order to make something visually salient it should be different, sometimes significantly, from its surroundings.

Banner Blindness research is beginning to prove that users overlook, or worse, ignore the most obvious links (“Banner blindness,” n.d.).

This helps to prove banner blindness as a direct result from information overload in assuming that the recipient of these messages is overwhelmed by the difference in the environment of information. Thus, the information outside of
the user controlled content such as advertisements, is too much load for an individual to handle, and is therefore, neglected.

**Ad avoidance as social and cognitive behavior**

Much of the previous work on ad avoidance in an online environment has focused on social and/or cognitive behavior that leads to avoiding advertisements across different mediums including but not limited to digital, television, radio and print. Speck and Elliott (1997) studied ad avoidance as “all actions by media users that differentially reduce their exposure to ad content,” (p. 61) and find that “people avoid ads by cognitive, behavioral and mechanical means” (p. 62). The authors also assert that ad avoidance is a part of one’s media style. While Speck and Elliott help to lay a foundation and define advertising avoidance, their study focuses mostly on television, radio and print advertisements. J.P. Benway narrows this topic down to banner blindness, a type of ad avoidance exclusively in a digital environment. Benway (1999), in coining the term “banner blindness” asserts that banner blindness is an “ironic occurrence in web interaction – the user happens to be looking for the link that the designer especially wants the user to see, but that link is one of the most likely to be missed” (p. 3).

Ha and McCann assert “selective attention theory provides a rationale of how consumers break away from the constraints of a captive medium” and “selective attention to objects by an individual is a protective mechanism, which human beings use to allocate their limited attentional resources according to their needs” (p. 574). Attentional resources being the amount of attention in which an individual can pay to a given load of information, this helps to tie information overload to advertising avoidance in suggesting that individuals neglect information outside of a particular focus.
It’s been suggested by Pagendarm and Schaumberg (2001) that “users may also have learned that advertising banners often do not deliver what they promise. Consequently, they consciously ignore them. Another reason, as several studies suggest, is that many users simply do not notice banners on Web sites,” (p. 3). After a study consisting of a “task-oriented session” in which users are trying to achieve a specific goal and an “aimless browsing session” in which users are browsing without a goal, the authors found the following:

It seems that people who are browsing aimlessly are more susceptible to perceiving a Web banner, because the banners' color contrast or animation trigger an orientation reaction that is followed by a bottom-up process of information processing. Subjects who search for information, on the other hand, seem to apply cognitive schemata that suppress a deeper processing of Web banners (“Why are users banner blind,” 2001).

The authors’ data helps to infer that users focused on a specific task or “user controlled content” are less likely pay attention advertising banners on the top or sides of a website. Pagendarm and Schaumberg conclude that “recall as well as the recognition scores for banners were higher when subjects browsed aimlessly than when they performed a goal directed search for information. Thus, the hypothesis that navigation behavior has an impact on the (non-)perception of Web banners can generally be accepted (“Why are users banner blind,” 2001).”

Cho and Cheon’s (2004) study assists to answer the question of why recipients avoid online advertisements. The authors state that since the first appearance of advertising banners in 1994 on Hotwire.com, banners have prevailed as the most
common form of online advertising (p. 89). Cho and Cheon assert that the Internet is a
task or goal oriented medium (p. 89) therefore most people perceive the Internet “as a
tool rather than an entertainment medium” which may cause people to avoid online
advertisements “more vigorously” (p. 90). The authors adopt three methods of Internet
advertising avoidance: The greater the perceived goal impediment, the greater the
advertising avoidance; The greater the perceived ad clutter, the greater the advertising
avoidance and the greater the prior negative experience; the greater the advertising
avoidance.

Cho and Cheon (2004) construct a hypothesized model of ad avoidance and find
that their model efficiently explains why people “cognitively, affectively and
behaviorally” avoid these messages and advertisements on the Internet. They also find
that Perceived Goal Impediment best explains why users are avoiding Internet advertising
(p. 95). In addition, Jin and Villegas (2007) determine that “personality variables are the
main factors in consumer decision-making behaviors and Internet characteristics, such as
levels of interactivity, can greatly influence the effectiveness of ads in online
environments” (p. 264). The authors also find that “the need for cognition has a greater
impact on ambivalence with high-interactivity. On the other hand, the need for cognition
had a greater influence on more influenced ad avoidance with low-interactivity” (p. 264).

Huberman, Pirolli, Pitkoe & Lukose (1998) find that consumers have a lower
threshold for uncertainty at the beginning of a browsing session and are thus more likely
“click on hyperlinks that deviate for their navigational path” early on in a browsing
session will be more likely to be clicked on than those consumers are exposed to later (p.
The authors also find that “because clicks are most likely to occur during initial banner ad exposures, consumers become less click-prone as they become more familiar with the site over time” (p. 537).

Loughney, Eicholz and Hagger’s (2008) “Exploring the effectiveness of advertising in the ABC.com full episode player” from the Journal of Advertising Research, provides a very specific study on brand awareness and brand attitudes in an online environment. It was found that advertisements on the digital video player at ABC.com were an effective way to increase brand awareness. Also, the authors found that advertising avoidance in correlation with the video player was limited.

Ultimately, banner blindness becomes an issue for the advertiser as to whether or not their ad will be seen. Banner blindness could ultimately have a direct effect on brand awareness. The lower chance of a consumer recognizing an advertisement, the lower chance that same consumer will be able recall an organization’s advertisement.

**Measuring brand awareness and ad recall**

In looking at the ideas of information overload and ad avoidance, it’s important to understand the measures in which these phenomena may have on an individual. Advertisements are important in that they assist in developing the image and equity of an organization’s brand. Brand awareness is the probability that consumers are familiar about the life and availability of the product. It is the degree to which consumers precisely associate the brand with the specific product. Measuring brand awareness includes both brand recognition as well as brand recall (“What is brand awareness, n.d.”). Advertisers take advantage of repetitive advertising to create an impression on the individuals’ consciousness in order to prevail as the chosen brand or product (Rafī, Ali,
Waris & Kashif-ur-Rehman, 2011, p. 44). Branding is more than giving a brand name and signaling that a particular product has been stamped with the mark and imprint of an organization (Sheena, Mohanan & Naresh, 2012, p. 35).

Srinivasan, Park and Chang state that there are two measures of awareness of a brand, aided and unaided, depending on the context at hand:

In a context where the customer is likely to see multiple brands displayed at the time of purchase, aided awareness may be more appropriate. On the other hand, in a context where the customer has to input the name of the website or where the customer has to ask for the brand, unaided awareness may be more appropriate. Independent of which measure is used, our approach assigns a zero probability to the brand if the customer is not aware of it (Srinivasan, Park & Chang, p. 1438).

Another definition states that aided awareness means that on mentioning the product category, the customers recognize one’s brand from the lists of brands shown. Top of mind (unaided) awareness means that on mentioning the product category, the first brand that customer recalls from his or her mind is one’s specific brand (“What is brand awareness,” n.d.). In measuring brand awareness in a digital environment, aided brand awareness would be most appropriate for this study in the sense that page banners would create a situation similar to a marketplace in which an individual is presented with several different types of products and services.

One idea of digital advertising asserts that interactivity increases brand awareness. Bellman, Schweda and Varan (2009) “measure awareness using ad recall and persuasion by brand purchase intentions,” (p. 15) and assert that “purchase intentions increase in line
with higher levels of interactivity” (p. 17). The authors also state that when a person is “in the market” for a product it’s more likely that ads will be processed more extensively and viewers will want to click on an interactive ad to find out more about the advertised brand (p. 16). It can be suggested that interactivity in an online environment increases brand awareness.

**Rationale**

Previous work suggests that an individual has the ability to absorb only so much information at one time. The amount of information from a given medium, noise and multi-tasking that develop from exterior mediums, and time are all factors that aid information overload. This research also suggests that when the load is too great for an individual, certain information is chosen at the expense of other information. In the case of advertising in an online environment, banner advertisements are usually what becomes the expense. Advertising avoidance or banner blindness are phenomena that occur when a consumer engaged in an online environment either intentionally or unintentionally miss information that is designed to be obvious. Missing this information can ultimately hamper brand awareness. Brand awareness is usually measured as aided or unaided. Under this circumstance, aided brand awareness would seem to be the most appropriate in measuring one’s product recall after an online browsing session. It can be possible that lower knowledge of a brand can be a direct result from individual advertising avoidance due to information overload.

Ultimately, this thesis will examine the correlation between information overload and ad avoidance to measure the effect these problems have on overall brand awareness of a given product when pushed in an online environment. Some studies have viewed the
physical characteristics of human interaction when engaged in Computer Mediated Communication (CMC) in order to establish a measurement of advertising avoidance such as how long an individual looks at a part of a webpage. This study will focus on product recall upon the completion of a browsing session in order to establish the connection between advertising avoidance and its overall effect on individual brand awareness in an online environment. This study will ultimately seek whether or not advertising avoidance lends measurable influence to an individual’s brand awareness after engaging in an online environment.

**Research questions**

Several different questions arise from the literature review in dealing with information overload, ad avoidance and brand awareness. These questions deal with some of the gaps stemming from the literature review in an attempt to pose new questions based on previous work.

**Thesis Question:** When considering brand awareness in a digital environment what are the effects of advertising avoidance and how do these effects limit brand awareness and an individual’s ability to recall an ad?

**RQ1.)** What direct correlation and influence, if any, does information overload have to ad avoidance/banner blindness?

**RQ2.)** What effect does banner blindness, caused by information overload, have on an individual’s ability to recall a brand from a product category?
Chapter 3. SCOPE AND METHODOLOGY

Scope of the study

This research developed from an initial observation that individuals cannot always remember specific elements on a website or other digital medium. In looking at the effect of information overload on an individual browsing the World Wide Web, there are a number of effects that could occur in the absorption of information by that individual, specifically the inability to notice or recall an advertisement, possibly due to the fact that the individual has reached their informational load capacity. This research, focuses on how individuals are cognitively and behaviorally avoiding digital advertising in an online environment and develops a correlation between the amount of information on a website and its ultimate effect on an individual’s ability to recall a specific advertisement or brand. In viewing the problem of information overload from a social and behavioral standpoint, the ultimate outcome of how much brand awareness and ad recall may or may not be affected is of importance. The scope of this research was ultimately narrowed by an interest in an individual’s ability to recall an advertisement after a task-oriented browsing session.

Methodology of the study

This thesis will use the quantitative method of experimental and survey research in order to collect data. Rubin, Rubin, Haridakis and Piele (2010) state that survey research is best for “collecting opinions or behaviors of people or relationships between two or more variables in hypotheses or research questions” (p. 219). In order to identify the ways in which banner blindness as a product of information overload may affect an individual’s ability to recall and advertisement and measure overall awareness of a brand,
the researcher collected data from surveys following short individual browsing sessions. Participants were chosen on a voluntary basis and participation in the survey by answering questions was considered consent of the participant. The participants browsed a website, developed by the researcher, on a personal computer. The data collected will not only be used to provide standalone results, but in order to develop the most comprehensive findings of the results, the data will also be compared with results and observations from prior research.

**Measures of the Research**

This research observed and measured the following aspects of the browsing session and survey questionnaire:

1. The participant’s interest in the website as a viable source for news and information.

2. The participant’s observation or avoidance of advertisements on a website.
   a. The cognitive and behavioral nature of the observation or avoidance of the advertisements. i.e. Whether or not the participant consciously or subconsciously observed/avoided the advertisement.

3. The participant’s ability to recall the advertisement/brand after the completion of their browsing session.

4. The effect of high informational load vs. low informational load on the participant’s ability to see and recall advertisements.

In order to develop a correlation between information overload, ad avoidance and brand awareness, this study leveraged the browsing session with the survey to rely on the participants’ self-reporting of observations as to whether or not specific page elements
such as advertisements were noticed in the browsing session. The participants self-reported their awareness of the advertisements versus other content and the specific brand featured in the advertisements. They self-reported their likelihood of noticing that brand among a pool of related products or services in order to measure the influence of the brand on their consumer behavior and purchasing decisions. The data gathered through the survey questionnaire ultimately measures whether or not banner blindness occurred, possible recollection of the advertisement and brand and the likely influence of the brand in a brand recall situation. In using two different groups with different levels of informational load, the questionnaire measured each of the aforementioned factors accordingly.

**Sample of the study**

The sample of the study was be selected through nonprobability sampling using an accidental or convenience sample in which participants are chosen based on the return of an inquiry to participate in the study. A total of 24 participants completed the browsing session and survey participation and divided into two groups of 12. Rubin et al. state that in using nonprobability sampling conclusions can differ from that of using probability sampling, however, “nonprobability methods are still useful when investigating many research questions” (p. 202). In the recruitment of 24 participants, each participant was assigned to group A or group B alternately, i.e. the first participant was placed in group A, second participant in group B, third participant in group A, etc. until the 24th and last participant completed his or her participation in the study.
Instrumentation of the study

Two groups of participants began the study by engaging in a brief, task-oriented online browsing session on a respective website for each group. The participants were instructed to conduct the browsing session on a personal computer and not a mobile device. The researcher designed the websites and each included a landing page, news content, advertisements, and additional page elements. Group A conducted the browsing session on a website designed with high levels of informational load while Group B conducted the browsing session on a website designed to display low levels of informational load. For this study, high informational load consisted of ten or more elements on a website while low informational load consisted of five or less elements on a website. The advertisements on both variations of the website consisted of both top-banners and side-banners featuring Progressive Insurance advertisements and Progressive’s fictional character and spokesperson “Flo.”

The survey used will identify factors of the effect of banner blindness on the participants and their ability to recall whether or not they noticed advertising banners. The survey will also measure the extent of which the participants are able to recall the specific product or service being advertised and the influence in which the advertisement may or may not have on ad awareness and brand recall.

Validity and Reliability

In considering validity and reliability the researcher must measure what he intends to measure and that “the measure should include items or questions about all aspects of the construct” (Rubin et. al, 2010, p. 203). In measuring the banner blindness
and its effect on brand awareness as a result of information overload, this study will be

gathering data similar to that of similar studies by J.P. Benway (1999), Speck & Elliott
(1997) and Pagendarm & Schaumberg (2001). Measuring the results of banner blindness
as a result of information overload and the subsequent effect on an individuals ability
recall an advertisement are validated using experimental and survey research through a
sample procured via a convenience sample. In using a t test or a Chi-squared test with
this study to measure the varying results of both groups helps to establish both internal
and external validity and reliability.

**Ethical Considerations**

Rubin et. al (2010) suggest that researchers must respect the rights of research
participants and state that researchers must adhere to one basic rule: *do no harm* (p. 204).
In considering this, the researcher’s primary objective throughout this research was to
complete it in regard to the rights, privacy and anonymity of the participants.

Ethically, the largest considerations for this study are that of privacy and
anonymity. All participants in this study were adults of 18 years or older who gave prior
consent to participate in this study. The participants were notified that their participation
is purely for academic research and that no personal information other than age or gender
will not be collected, shared or released. The participants were also notified that their
participation and survey answers would not be directly shared with any organization
other than Gonzaga University and specific university personnel.

In order to create an environment that will be as comfortable as possible for the
participants, they were notified that their participation is strictly voluntary and they may
cease to partake in the study at any time and under any circumstances. Also, to ensure
privacy, anonymity and comfort, the participants’ individual browsing session could be completed in a setting of their choosing. The session was not be observed, nor was the participants’ data collected in real-time during the browsing session. The participants were also notified that their participation will not require any future contact and that upon completing their survey, their participation will be complete.

In order to limit any predetermining influence on behalf of the participants, the name and nature of the study was not disclosed prior to or during and individual’s participation. Again, this information was omitted to preserve the purity of answers and data collection. However, the participants had the choice of an optional debriefing at the conclusion of their participation in the study. Once all participants had completed the study, and the study has been determined by the researcher to be ethically sound, the analysis of the data began. In chapter four, the analysis and results will be discussed.
Chapter 4. THE STUDY

Introduction

In seeking to answer RQ1. “what direct correlation and influence, if any, does information overload have to ad avoidance/banner blindness?” and RQ2. “what effect does banner blindness, caused by information overload, have on an individual’s ability to recall a brand from a product category?” a study was designed to measure the correlations between the factors of information overload, advertising avoidance (banner blindness) and brand awareness (ad recall). The data was analyzed and validated through the measures of a t-test and a Chi-squared test to measure the significance of statistical difference between the two groups, and nominal data variables for the latter test. The first group was engaged in a task-oriented browsing session in a high informational load environment and the second group was engaged in a low informational load environment. The objective of the researcher was to provide a comfortable browsing environment for the participants while collecting reliable data to analyze in the search for results.

Data Analysis

The basis of this study was to measure the participants’ perception of information overload, ad avoidance (banner blindness) and brand recall through a quantitative method of research and data collection. Participants conducted a brief task-oriented browsing session. They were then instructed to answer a brief survey that measured their browsing habits and their perception of aspects of the browsing session. Participants were broken into two groups. Group A was given a task to navigate to a webpage which contained higher loads of information while Group B was given a task to navigate to a webpage containing lower loads of information. The survey contained 14 close-ended questions
that gathered data on information overload, ad avoidance (banner blindness), brand recall and demographics. These questions consisted of four dichotomous questions, four Likert-type questions and six multiple-choice questions. Of the 14 questions, eight were used to measure browsing session data while six were used to gather demographic data. Once the surveys were complete, the data was compiled and compared through an unpaired t-test or Chi-squared test dependent upon the class of question. A t-test was chosen for items two through five, as it is an appropriate method to compare the means of the scores of two samples. A Chi-squared test was chosen for items six through eight as it is most appropriate to measure nominal data variables.

**Results of the study**

Of the 34 inquiries for participation that were sent out, 24 surveys were returned at a response rate of 70.58%. In using a convenience sample for the study, of the 24 participants, 15 of the participants were women while nine of the participants were men. Item one was to indicate which of the two groups each participant was in. Items two and three measured the perception and effect of the amount of information on their respective webpage. Items four and five measured the attention the participants gave to specific webpage elements. Item six measured whether or not the participants noticed the advertisements while items seven and eight measured their ability to recall the advertisements after the completion of the browsing session. Items 9-14 consisted of various demographic information reported by the participants.

Item two asked *to what extent did you find that the page you were told to navigate to was cluttered with information?* (Figure 2, below). This item’s t test results indicated the mean for Group A was 3.00 ($sd = 1.41$) and the mean for Group B was 2.25 ($sd =
1.06). No significant statistical difference from Group A to Group B was found ($t(24) = 1.4724, p > .05$).

![Figure 2: To what extent did you find that the page you were told to navigate to was cluttered with information?](image)

Item three asked to what extent did you feel overwhelmed by the amount of information on the website? (Figure 3, below). This item’s $t$ test results indicated the mean for Group A was 2.50 ($sd = 1.24$) and the mean for Group B was 1.42 ($sd = 0.90$). A significant statistical difference from Group A to Group B was found ($t(24) = 0.0230, p < .05$).
Item four asked to what extent did you pay attention to the editorial content? (Figure 4, below). This item’s t test results indicated the mean from for Group A was 3.33 (sd = 1.23) and the mean for Group B was 3.33 (sd = 1.37). No significant statistical difference from Group A to Group B was found (t (24) = 0.0000, p > .05). Group A and Group B were found to be statistically equal.
Item five asked to *what extent did you pay attention to the non-editorial content (excluding advertisements)*? (Figure 5, below). This item’s $t$ test results indicated the mean from Group A was 2.42 ($sd = 1.62$) and the mean from Group B was 2.17 ($sd = 0.83$). No significant statistical difference from Group A to Group B was found ($t (24) = 0.4749, p > .05$).

![Figure 5: To what extent did you pay attention to the non-editorial content (excluding advertisements)?](image)

Item six asked *did you notice any advertising banner(s) on the website*? (Figure 6, below). This item’s chi-squared test results indicated a significant statistical difference ($\chi^2 = 4.4444, df = 1, p = 0.035015$). 41.6% of Group A participants reported noticing the advertisements while 83.3% of group B participants reported noticing the advertisements.
Item seven asked *which of the following advertisements do you recall seeing on the website?* (Figure 7, below). This item’s *chi-squared* test results indicated a significant statistical difference ($\chi^2 = 6.273$, df = 2, $p = 0.04343455$). 25% of Group A participants recalled seeing a Progressive advertisement on the webpage while 75% of Group B participants reported seeing a Progressive advertisement on the webpage.
Item eight asked which of the following fictional/non-fictional spokesperson(s) do you recall seeing in the advertisements? (Figure 8, below). This item’s chi-squared test results indicated a significant statistical difference ($\chi^2 = 4.196$, df = 1, $p = 0.04051945$).

25% of Group A participants recalled noticing Progressive’s Flo as the fictional spokesperson featured in the advertisement compared to 66.6% of Group B participants recognizing Flo as the fictional spokesperson featured in the advertisement.

![Figure 8: Which of the following fictional/nonfictional spokesperson(s) do you recall seeing the advertisements?](image)

Of the aforementioned survey items, four of the items were found to have statistically significant difference and three of the items were found to not have any statistically significant difference.

**Discussion**

**Information overload and banner blindness**

This study indicates that an individual’s perception of information on a page can ultimately have an outcome on whether or not he or she is affected by banner blindness.
The results of the study were consistent with information overload theory, which asserts when an individual receives a high load of information, the absorption of a given piece of information is at the expense at another piece of information (Schneider, Dumas, Shiffrin, 1984).

One of the most significant findings indicated that those participants who felt overwhelmed by the amount of information on the page were less likely to notice the advertisement on the page. Four participants from Group A reported being overwhelmed compared to nine participants from Group B reporting that they did not feel overwhelmed. Two Group A participants who reported to be overwhelmed did not see the advertisements, while eight Group B participants who reported to not be overwhelmed noticed the advertisements. This finding further supports Ha and McCann’s selective attention theory, which states that “selective attention to objects by an individual is a protective mechanism, which human beings use to allocate their limited attentional resources according to their needs” (p. 574).

Cho and Cheon (2004) state that the greater the ad clutter on a webpage, the greater the occurrence of ad avoidance (p.89). It should be noted that when reporting clutter on the webpage, there was no significant statistical difference between Group A and Group B. However, when compared to the reported increase in feeling overwhelmed by the amount of information on the page, this could indicate that the perception of clutter could be subjective and based on individual opinion.

**Brand Awareness and Ad Recall**

Survey item seven was aimed at measuring the ability to recall the advertisement(s) used in the webpage by identifying the brand. It was found that Group
B reported to recalling the correct advertisement over Group A by an overwhelming majority. When recalling the brand used in the advertisement within Group B, nine participants correctly identified Progressive while three participants were unsure or didn’t remember. Group A recorded three participants who correctly identified Progressive, one participant incorrectly identified Geico, and eight participants were unsure which brand was featured on the webpage’s advertisements.

Survey item eight asked participants to recall the fictional or non-fictional spokesperson of the featured advertisement. Eight Group B participants correctly recalled Progressive’s Flo as the spokesperson while four Group B participants were unsure. In Group A, three participants correctly recalled Flo as the spokesperson used in the advertisement while nine participants reporting being unsure or unable to remember.

When comparing both survey items eight and nine to survey item three which asked participants to report whether or not they felt overwhelmed by the amount of information on the webpage, Group A and Group B both produced a negative correlation between items three and seven, and three and eight. This indicates that the more overwhelmed an individual feels, the less likely they will be able to recall an advertisement or its contents; the less overwhelmed an individual feels, the more likely they will be able to recall an advertisement or its contents.

**Attentional resources and browsing habits of an individual**

When engaged in a task-oriented browsing session, Pagendarm and Schaumburg found that “subjects who search for information seem to apply cognitive schemata that suppress a deeper processing of Web banners” (“Why are users banner blind,” 2001). Cho and Cheon also make the assertion that the Internet is a task- or goal- oriented
medium (p. 89) and that most people perceive the Internet “as a tool rather than an entertainment medium” (p.90). This required the researcher to create an environment that would be more perceived as a tool rather than an entertainment medium in order to gauge the level of banner blindness that would occur in a task-oriented session. The participant’s were instructed prior to their browsing session to search the articles on the webpage they were directed to navigate to and decide on the one that they felt was the most interesting. This was done in order to create a task-oriented situation in which participants were specifically looking through user controlled content in order to find a particular article.

Items four and five of this study sought to explore the area of the webpage in which the participant was paying the most attention. It was found that for both items four (To what extent did you pay attention the editorial content?) and five (To what extent did you pay attention to the non-editorial content?), neither survey item was found to have a significant statistical difference between Group A and Group B. Benway (1999) suggested that even though specific page elements such as advertisements are intended to be obvious, these elements are often what is missed when banner blindness occurs (p. 3). This suggests that regardless of the amount of information on a page, an individual will seek to pay attention to the content in which they wish to engage in.

In Looking at information redundancy and entropy, Williams (1977) suggests that “predictability can become so great that very little information is exchanged” (p.40) and that “too high a degree of routineness, repetition or redundancy in the elements of a message produces very low entropy which, although it may aid in ease of assimilation, can be boring and empty for the user” (p. 40) This suggests that perhaps based on an
individuals browsing habits that a less predictable or routine environment may drive a user of a digital medium toward advertisements. Users of digital mediums may be expecting a similar format across all webpages that in turn drives them away from areas of the page that they may fight to be redundant.

Upon the completion of the study, the next chapter examines the limitations of the study and further recommendations for future study in the fields of information overload and banner blindness. Chapter five also includes the conclusions of this study, which will compare the findings of this work to other previous works in this area, as well as continue to examine this study with the theoretical framework and philosophy that supports this study.
Chapter 5. SUMMARIES AND CONCLUSIONS

Limitations of the study

One way to gauge banner blindness in a study using a digital medium is through measuring immediate behavior, reaction, eye movement and gazes. Due to the nature of the study, technological and monetary limitations, and partial ethical considerations, this was not measured. As the nature of the study is to also measure ad recall and overall brand awareness, it was not entirely necessary to measure real-time, immediate cues of the individual engaging in the browsing session. This study focuses more on the post-browsing recognizance of information and advertisements, however, compared to self reporting, real time monitoring of a browsing session could give more insight into the browsing habits of an individual as well as specific instances of what the individual engages him or herself in on a webpage.

Also, due to time and geographical constraints, the sample size of this research faced limitations, as it is relatively small and based on a convenience sample. However, the sample size was enough to provide the researcher with a reliable amount of data in regard to concluding the effect of information overload on banner blindness and brand awareness. Furthermore, the researcher was unable to collect data from participants using the same equipment and in the same environment. While this could put participants at ease being in an environment of their choosing, it could also increase or decrease of external factors, such as noise, on a case by case basis. Based on this sample, there’s a chance that environments in which participants are browsing could have varied greatly.
Future study or recommendations

Future studies in this area may want to consider collecting data from a larger sample size. While the sample size used for this study was adequate, a further sample size could further illustrate differences in the participants’ perception of the amount of information on a webpage.

Gathering more data in real time during the browsing session may also have an impact on a study of this nature. It would provide more insight as to what the participants are viewing during a browsing session. Some studies have used video equipment to monitor “gazes” as an individual browses a webpage. This helps to avoid an individual self-reporting what they were viewing and decreases the likelihood of error.

Finally, another recommendation would be to attempt a study of this nature in a more controlled environment, i.e. using the same equipment, using the same space, giving participants a time limit. While having participants complete this study in the comfort of their own home or workspace helped to create the most realistic environment possible, there are variables that could essentially have an effect on the outcome of the participants self-reporting of the data. This includes such factors as external noise, different Internet connections and speeds, different hardware or software, and different web browsers. A more controlled environment would help researchers collect more consistent data from their participants.

Conclusions

This study was completed in accord with Clifford Christians’ observations that people are “most fully human” when they are engaged in relations with one another and that mutuality is the essence of humanism. The sending, receiving and absorption of
messages, such as advertisements is an interaction between two parties that relies upon trust and a mutual understanding between the two. Christians’ philosophical views help to shape this study as it helps both the researcher and the reader to understand the norms that guide the routine communication and transactions between advertisers and consumers. A community of people, or an audience, helps to guide and shape these norms by their reactions to the content they seek. If an audience becomes so turned-off by the frequency, placement, content or predictability of this process that they fail to notice the advertisements, they are further contributing to this mutual transaction and its practicality. In this study, the idea of information overload and its negative effects that may unintentionally create banner blindness plays part into the relations between advertisers and their audience(s).

This study further supports the hypothesis that information overload does have an effect on banner blindness, which in turn decreases brand awareness when engaged in a task-oriented browsing session. It hampers an individual’s ability to both notice and recall an advertisement. This study found that when an individual feels overwhelmed by the amount of information on the page, that individual is less likely to notice any advertisements. This study also found that an individual reporting to feel more overwhelmed by the amount of information on a webpage is less likely to recall a brand or connect an element of that brand (in this case, a fictional spokesperson) to an advertisement when compared to an individual who feels less overwhelmed.

This study further contributes to the assertion that when an individual is overloaded by information that the absorption of a given piece of information is at the expense at another piece of information (Schneider, Dumas, Shiffrin, 1984). In this case,
an individual, at the expense of the advertisements on that same page, sought after too many elements on a webpage. As Fisker (2012) states that “when an editorial media vehicle is perceived to be cluttered by non-editorial content (mainly advertisements), an avoidance strategy is triggered by the consumer/person exposed to the advertisements as a defense mechanism to protect him-/herself from exposure and informational overload” (p. 5). Again, to further support this, Ha and McCann (2008) assert “selective attention to objects by an individual is a protective mechanism, which human beings use to allocate their limited attentional resources according to their needs” (p. 574). This study further illustrates the avoidance strategy that Fisker, and Ha and McCann elaborate on by its findings that individuals who are looking to consume editorial content will avoid other content, in this case advertisements, in order to achieve his or her specific task. When these advertisements are avoided because of too high an informational load, individuals lose the ability to associate the presented advertisement or its content to a specific brand.
REFERENCES


APPENDIX A

Survey Group A

Hello! Thank you for taking the time to participate in my research. I truly appreciate your time to help my contribution to the field of Communication. First and foremost, know that your privacy is of the utmost importance in the completion of this research and your answers will not be seen by anyone other than the Researcher, the Researcher’s Thesis Advisor and the Researcher’s Thesis Mentor. Also, this study is purely for academic research and the surveys will not be shared with any institutions or organizations other than the necessary faculty board at Gonzaga University. The following web browsing session and survey is aimed at measuring the web browsing habits of individuals and relies on the self-reporting answers of your session, however, in order to avoid influence on survey answers, the exact nature of the study cannot be disclosed prior to completion. If you would like more information upon the completion of the survey, you may request a debriefing in which the researcher will answer any questions you may have. Also, if you feel uncomfortable during the study, you may quit at any time and your survey will be disregarded.

Please read the following instructions in order to properly complete this study. Your participation should take no longer than 15 minutes to complete the browsing session and survey. Again, thank you for your time and participation.

Sincerely,
Gregory D. Salyer

Instructions (please read in full first):

1. Please DO NOT refer to the attached survey prior to viewing the following website.

2. Please open the following URL in your web browser. http://hstial-gd1.intuitwebsites.com/index.html. This will take you to the homepage of The Tallahassee Report.

3. View the information on the homepage for a moment, then, **click the “Local News” tab**. Please do not click on anything else.

4. This will take you to some news content, please read the blurbs to the stories and decide on one that you feel to be the most interesting. It is not necessary to click on any other links.

5. Close your web browser.

6. Please complete the attached survey. Please DO NOT refer to the website while completing your survey.
Upon completion of the survey, please return to researcher in person or at gsalyer@zagmail.gonzaga.edu. Please complete the following survey after the completion of your instructed browsing session. Please do not refer to the website you were instructed to browse while completing this survey.

**To be filled out by participant:**

1. Which page were you instructed to navigate to?
   - Local News
   - Sports

2. To what extent did you find that the page you were told to navigate to was cluttered with information? (1 = Not cluttered at all, 5 = Very cluttered)
   - 1 2 3 4 5

3. To what extent did you feel overwhelmed by the amount of information on the website? (1 = Not Overwhelmed, 5 = Very Overwhelmed)
   - 1 2 3 4 5

4. To what extent did you pay attention to the editorial content? (1 = Not at all, 5 = A lot)
   - 1 2 3 4 5

5. To what extent did you pay attention to the non-editorial content? *i.e. widgets and other page elements excluding advertisements* (1 = Not at all, 5 = A lot)
   - 1 2 3 4 5

6. Did you notice any advertising banner(s) on the website?
   - Yes
   - No

7. Which of the following advertisements do you recall seeing on the website?
   - State Farm
   - Nationwide
   - Farmers
   - Progressive
   - Geico
   - AllState
   - Not Sure/Don't Remember

8. Which of the following fictional/non-fictional spokesperson(s) do you recall seeing in the advertisements?
   - Geico Gecko
   - Flo
   - Mayhem
   - Actor J.K. Simmons
   - The General
   - Not Sure/Don’t Remember
APPENDIX B

Survey Group B

Hello! Thank you for taking the time to participate in my research. I truly appreciate your time to help my contribution to the field of Communication. First and foremost, know that your privacy is of the utmost importance in the completion of this research and your answers will not be seen by anyone other than the Researcher, the Researcher’s Thesis Advisor and the Researcher’s Thesis Mentor. Also, this study is purely for academic research and the surveys will not be shared with any institutions or organizations other than the necessary faculty board at Gonzaga University. The following web browsing session and survey is aimed at measuring the web browsing habits of individuals and relies on the self-reporting answers of your session, however, in order to avoid influence on survey answers, the exact nature of the study cannot be disclosed prior to completion. If you would like more information upon the completion of the survey, you may request a debriefing in which the researcher will answer any questions you may have. Also, if you feel uncomfortable during the study, you may quit at any time and your survey will be disregarded.

Please read the following instructions in order to properly complete this study. Your participation should take no longer than 15 minutes to complete the browsing session and survey. Again, thank you for your time and participation.

Sincerely,
Gregory D. Salyer

Instructions (please read in full first):

1. Please DO NOT refer to the attached survey prior to viewing the following website.

2. Please open the following URL in your web browser. http://hstrial-gd1.intuitwebsites.com/index.html. This will take you to the homepage of The Tallahassee Report.

3. View the information on the homepage for a moment, then, click the “Sports” tab. Please do not click on anything else.

4. This will take you to some news content, please read the blurbs to the stories and decide on one that you feel to be the most interesting. It is not necessary to click on any other links.

5. Close your web browser.

6. Please complete the attached survey. Please DO NOT refer to the website while completing your survey.
7. Upon completion of the survey, please return to researcher in person or at gsalyer@zagmail.gonzaga.edu. Please complete the following survey after the completion of your instructed browsing session. Please do not refer to the website you were instructed to browse while completing this survey.

To be filled out by participant:

1. Which page were you instructed to navigate to?
   Local News        Sports

2. To what extent did you find that the page you were told to navigate to was cluttered with information? (1 = Not cluttered at all, 5 = Very cluttered)
   1        2        3        4        5

3. To what extent did you feel overwhelmed by the amount of information on the website? (1 = Not Overwhelmed, 5 = Very Overwhelmed)
   1        2        3        4        5

4. To what extent did you pay attention to the editorial content? (1 = Not at all, 5 = A lot)
   1        2        3        4        5

5. To what extent did you pay attention to the non-editorial content? i.e. widgets and other page elements excluding advertisements (1 = Not at all, 5 = A lot)
   1        2        3        4        5

6. Did you notice any advertising banner(s) on the website?
   Yes        No

7. Which of the following advertisements do you recall seeing on the website?
   State Farm   Nationwide   Farmers   Progressive   Geico   AllState   Not Sure/Don't Remember

8. Which of the following fictional/non-fictional spokesperson(s) do you recall seeing in the advertisements?
   Geico Gecko   Flo   Mayhem   Actor J.K. Simmons   The General   Not Sure/Don’t Remember
APPENDIX C

Survey Results

Item 2. To what extent did you find that the page you were told to navigate to was cluttered with information? (1 = Not cluttered at all, 5 = Very cluttered)

Figure 2.

Table 2.

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Cluttered</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Somewhat Cluttered</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Neutral</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Cluttered</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Extremely Cluttered</td>
<td>2</td>
<td>0</td>
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<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>SD</td>
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<td>0.39</td>
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<tr>
<td>SEM</td>
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<td>0.11</td>
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<td>N</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

\[ t = 2.2361 \]
Figure 2.

![Bar chart showing comparison between Group A and Group B for feeling overwhelmed by information on the website.]

Item 3. To what extent did you feel overwhelmed by the amount of information on the website? (1 = Not Overwhelmed, 5 = Very Overwhelmed)

Table 3.

<table>
<thead>
<tr>
<th>Perception</th>
<th>Group A</th>
<th>Group B</th>
</tr>
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<tbody>
<tr>
<td>Not Overwhelmed</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Somewhat Overwhelmed</td>
<td>4</td>
<td>2</td>
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<tr>
<td>Neutral</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Overwhelmed</td>
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<td>1</td>
</tr>
<tr>
<td>Extremely Overwhelmed</td>
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<td>0</td>
</tr>
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<thead>
<tr>
<th>Group</th>
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</thead>
<tbody>
<tr>
<td>Mean</td>
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</tr>
<tr>
<td>SD</td>
<td>1.24</td>
<td>0.9</td>
</tr>
<tr>
<td>SEM</td>
<td>0.36</td>
<td>0.26</td>
</tr>
<tr>
<td>N</td>
<td>12</td>
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</tr>
</tbody>
</table>

$t = 2.4449$
**Figure 3.**

![Bar chart showing attention levels for Group A and Group B](chart.png)

**Item 4.** To what extent did you pay attention to the editorial content? (1 = Not at all, 5 = A lot)

<table>
<thead>
<tr>
<th>Attention Level</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of my attention</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Not much of my attention</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Neutral</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Most of my Attention</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>All of my Attention</td>
<td>2</td>
<td>2</td>
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<thead>
<tr>
<th>Group</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
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<td>3.33</td>
</tr>
<tr>
<td>SD</td>
<td>1.23</td>
<td>1.37</td>
</tr>
<tr>
<td>SEM</td>
<td>0.36</td>
<td>0.4</td>
</tr>
<tr>
<td>N</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

\[ t = 0.0000 \]

**Figure 4.**
Item 5. To what extent did you pay attention to the non-editorial content? *i.e.* widgets and other page elements excluding advertisements (1 = Not at all, 5 = A lot)

Table 5.

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>None of my attention</td>
<td>6</td>
<td>2</td>
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<tr>
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</tr>
<tr>
<td>Neutral</td>
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</tr>
<tr>
<td>Most of my attention</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>All of my attention</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2.42</td>
<td>2.17</td>
</tr>
<tr>
<td>SD</td>
<td>1.62</td>
<td>0.83</td>
</tr>
<tr>
<td>SEM</td>
<td>0.47</td>
<td>0.24</td>
</tr>
<tr>
<td>N</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>

$t = 0.4749$
Figure 5.

<table>
<thead>
<tr>
<th>None of my attention</th>
<th>Not much of my attention</th>
<th>Neutral</th>
<th>Most of my attention</th>
<th>All of my attention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>5</td>
<td>10</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Group B</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

\( \chi^2 = 4.4444 \)
\( df = 1 \)
\( p = 0.035015 \)

Item 6. Did you notice any advertising banner(s) on the website?

Table 6.

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>No</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

\( \chi^2 = 4.4444 \)
\( df = 1 \)
\( p = 0.035015 \)

Figure 6.
**Item 7. Which of the following advertisements do you recall seeing on the website?**

**Table 7.**

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Farm</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nationwide</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Farmers</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Progressive</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Geico</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>AllState</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not Sure/Don't Remember</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 6.273 \]
\[ df = 2 \]
\[ p = 0.04343455 \]

**Figure 7.**
Item 8. Which of the following fictional/non-fictional spokesperson(s) do you recall seeing in the advertisements?

Table 8.

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geico Gekko</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Flo</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Mayhem</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Actor J.K. Simmons</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>The General</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Not Sure/Don't Remember</td>
<td>9</td>
<td>4</td>
</tr>
</tbody>
</table>

\[ \chi^2 = 4.196 \]
\[ \text{df} = 1 \]
\[ p = 0.04051945 \]

Figure 8.