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How Search Personalization Impacts Consumer Behavior

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Abstract

Almost half the world's population is online, roughly 3.2 billion people and one of the main uses of the internet is for search. Search engines like Google receive over 63,000 searches per second on any given day, with users looking to find information to questions, interact with communities, and purchase products online. Personalization enables search engines to provide the most relevant results and helps companies reach their target audiences more efficiently. This study focuses on personalization and its various forms, including targeted advertisements, the disadvantages of search, Cookies, and data privacy. The goal of this study is to understand (a) if higher online shopping frequently generates positive attitudes towards personalization, (b) if personalization has a positive impact on attitude towards advertisements, (c) if positive attitudes towards the brand or retailer impact purchase intentions, and (d) if understanding knowledge about personalization impacts how users respond to it. An online experiment was conducted, and the results show that there was a significance between online purchase behavior and personalization. The results also show that personalization has a positive impact on attitude towards targeted advertisements which ultimately impacts purchase decisions. However, from the experiment, it was evident that possessing knowledge about personalization does not impact how users respond to the technology.

Introduction

As defined by Microsoft, personalized search results are the results a user sees in a search engine that are not solely based on ranking factors (such as the relevance of the web pages to the search term), but also on the information that the search engine has about the user at the given time. This information includes location, search history, demographics, or interests (Microsoft, 2017).

Many internet and search users are often curious as to how search engines can personalize their results. In this thesis, the primary focus of research was on the search engine, Google and how they specifically personalize. The idea of Personalized Search was first introduced by Google in 2004, and it became the famously known Google Search in 2005. In 2009, Google began personalizing search results for all users, even those without Google accounts. Google can track their users as they browse the web due to advertising networks. For Google, these are DoubleClick, Google Analytics, widgets from YouTube and Google+, and cookies to track users' browsing habits. It has become possible to do browser fingerprinting as a method for sites to track returning users. This technique is focused more on browser history. In theory, data from any of these systems could be used to drive Web search personalization algorithms. (Hannak, 2017).

Looking back to when online personalization was first introduced, there first needed to be a way to connect people to data. Figure 1 illustrates the customer journey before personalization:

*Figure 1- Predictable,
simple customer journey*

Here the customer journey is predictable and simple. It starts with the user entering a search query, but before personalization existed the user needed to know exactly what they were searching for and the correct way to input it for relevant results. For example, some retailers do not have sophisticated search platforms integrated on their websites. If a user on such a website is interested in buying a "women's red dress", these less intelligent search systems can only understand part of the query such as "women's red" or "women's dress" and as a result, the user is unable to get the results they seek and must make another, more specific search.

After seeing search results, the user may or may not add the item to cart, but they are still more likely to drive to a physical store to buy a product due to the in-person interaction with a sales associate as this interaction makes consumers feel more comfortable when making a decision.

Today, systems have adapted and become more intelligent in understanding a consumer. These systems can help users make decisions they feel comfortable with online rather than avoiding online purchases. Figure 2, the model used today, empowers customers to engage on their own terms:

*Figure 2- Empowered customers
engage on their own terms*

The customer journey above is much more complex and users have more interactions when browsing or shopping online. Search systems have become more intelligent and learnt how to personalize more effectively. Here the customer has more "touchpoints" where they are interacting with chatbots or sales associates online to make more informed decisions. Users are more likely to now buy products online than in physical stores because of the ease of shopping online. Personalization has revolutionized the way we buy online and our overall interactions with digital services and platforms.

Research Question

Initial research was conducted around 4 main topics to discover more about search and personalization in general and the possible drawbacks of the technology. These included users' reasons to search, the disadvantages of search, targeted advertisements, and data privacy.

<u>Reasons to Search</u>

There are roughly 3.2 billion people online, almost half the world's population. They may be using the internet for a variety of reasons including social media, online shopping, research purposes, or for streaming services. Search engines like Google, Bing, DuckDuckGo, Baidu and many more process thousands of searches every day, and with personalization they can provide the most accurate and relevant results. Google receives over 63,000 searches per second on any given day and Facebook has over 2.41 billion monthly active users. In 2021, it is estimated that over 2.14 billion people worldwide are expected to buy goods and services online, almost double the amount from 2016. But what is causing these mass amounts of online users to continue using these interfaces, asking questions, interacting with communities, and purchasing products online? The answer is Search Personalization. Machines and algorithms have created a personalized experience for every user that keeps them coming back.

People use search for a vast majority of reasons, but three main ones include:

a) Finding authoritative sources on a topic

b) Staying updating on breaking news
c) Making purchase decisions

Disadvantages of Search

With the 17 billion queries Google receives per month, it is often hard to sort through the "clutter" often associated with the extensive page lists of information provided after a search. Most people are often unaware of how personalization works. To put it simply from the article "Measuring Personalization of Web Search" published by Cornell University, web search operators modify results or the order of them based on the user that is making the query or search. The one disadvantage of Search Personalization is the Filter Bubble. This effect impacts how users are given their results based on the personalization algorithm that displays what they think the user wants to see and sometimes blocks out other important information (Cornell University, 2017).

Besides the filter bubble, there are other ethical implication to the user associated with search. The first is a personal information breach. With cookies and online users frequently volunteering their information such as name, email, and sometimes addresses which can be collected and stored online. The second is turning a blind eye to companies and websites that do store personal user information without notifying the user. Many industry leaders are trying to set an example for ethical ways to use user information that still generate the same engagement and profit as before. The last is Cookies. Many users give websites access to their cookies without knowing exactly what they are do and solely give access, so the notification disappears.

In 2019, Gartner released an article stating that "despite having less trust in brands to use their data ethically, millennials are more willing to provide companies with information in exchange for convenience and personalized experiences… This is the privacy paradox- the apparent inconsistency between customer concerns about privacy and actual online behavior" (Gartner, 2019). Often internet users complain about their personal information online yet willingly give companies and websites access to their information through various means, including Cookies.

Targeted Advertisements

In order to explain what targeted advertisements are and how they work, understanding how companies target their specific markets is important. Targeting is a strategy that breaks a large market into smaller segments. The four main types of targeting are:

1. Demographic segmentation: age, gender, education, marital status, race, religion, etc.
2. Psychographic segmentation: values, beliefs, interests, personality, lifestyle, etc.
3. Behavioral segmentation: purchasing or spending habits, user status, brand interactions, etc.
4. Geographic areas: neighborhood, area code, city, region, country, etc.

HubSpot released an article in 2011 on media planning tools that includes the following quote, "Never forget that the key to great marketing is having an in-depth understanding of users. No matter how much technology changes, that never does." Although technology and machines learn and adapt every day, just as it is extremely important for marketers to keep up with these

changes, understanding your markets and how to target them is something that will never change.

The CEO at Hootsuite, Ryan Holmes says that we now see 5,000 advertisements a day, 100 times more than in the 70s. These advertisements are everything users see from banner ads on websites to promoted posts on Instagram. Companies benefit from using personalized ads as consumers pay more attention to them rather than generic ones.

Although targeted advertisements have many positive factors for companies, there are drawbacks as the technology affects consumers. The first is ad irritation where consumers that are skeptical of advertisements, are more likely to avoid personalized advertising and not engage with it. The second in a decrease in trust, when consumer feel their personal information has been used to personalize material for them, it decreases their trust in the advertiser and the expected benefits of personalization. The last is invasiveness of personalized advertising which decreases its overall effectiveness.

Literature Review

Badke (2012) discusses how personalization serves two possible interests: first, our own desire to customize whatever tool we are using to best meet our search needs, and second, the intention of vendors to target their goods to our preferences. The benefits both customers and businesses reap from personalization are immense. However, until now many businesses were only concerned with the short tail, that is placing emphasis on few products that the majority wanted. And when it came to advertising, businesses were claiming that half their advertising was effective, but that they do not know which half. Realistically the number is nowhere near fifty percent, but around five (DeRienzo, 2017). But the internet introduced us to the endless opportunities that are search. The internet allowed retailers and other businesses to target and reach smaller niche markets with specialized interests looking for only one certain product.

How does this process work? Look at Google, when you search for something, all your results are based off the terms you used, your search history, and location. All the ads and results that appear in under a second are tailored specifically to me. You might then ask, why does Google do this? They want to make an experience so tailored to your preferences and interests that you no longer need to sort through the "clutter" or irrelevant data to find the results you seek. Google can personalize this experience using a sophisticated combination of more than 300 relevancy ranking factors including pattern matching and searcher behavior (Blakeman, 2010). Today, we can target digital ads not just by zip code, not just by gender, age, and various other demographic factors. We can target to specific individuals based on what websites they are visiting and their search history (DeRienzo, 2017).

The term "Search Personalization" was coined in 2004, when Google introduced Cookies that took on a new life and expanded from simple identifiers to a system that directly and profoundly affected the results of a user's search experience. Personalization is everywhere, from our search engines, to social networks, operating systems and now even voice-enabled search from Apple's Siri, Amazon's Alexa, Microsoft's Cortana, and Google Home (Lening, 2016). The amount of

behavior these systems and algorithms have learned from to become the search systems they are today is incredible.

Studies have shown that search engine users only look at the first page of results. Some do not even make it halfway down the first page before deciding the information is not what they are looking for and change their search request. But personalization loves this. If a search engine can optimize the user's wants in the first few results, it can please the user and get the most relevant advertising into the user's view. The advertising meaning the ads displayed before any of your search results.

However, Badke could not have put it better when he said that "Personalization is based on the assumption that what I was is what I will be". Machines and algorithms are only able to learn so much about a user before they find what they are looking for and exit out of their Google browser for the day. Our search topics differ every day and personalization often has a hard time keeping up. Personalized web search aims to better account for an individual's information needs than generic web search. It is meant to boost retrieval performance by reranking the results ranked by a generic ranker for a user, based on a model of their previous and/or current interests. (Cai & de Rijke, 2017). Personalization has advanced immensely over the past ten years, but with the speed the Artificial Intelligence industry is moving, Search Personalization will only improve.

Many are skeptical of the implications of personalized search and are warry when using search engines like Google in fear they are giving too much of their personal data away. Yet Bing and Yahoo! are no different. Google gives the user the opportunity to check some of the information being used for their search. However, the information the user is unable to change is their location, or where their IP address appears to be (Blakeman, 2010). We have all had exposure to the headlines warning us about search engines that know what we want before we do, social networks that are more familiar with our habits than even our closest friends, and operating systems that "phone home" with our personal data. It seems that no matter that we do, online or off, everyone wants a piece of our data (Lening, 2016). Taking a closer look, Google can pull more information than just your location. For example, if you open your Google Chrome browser and sign into your account, Google can now track your behavior in that search session. Imagine you open Facebook and begin looking at what your neighbor cooked for dinner and you like that post. Many users are unaware they have given Google permission to access their Facebook, and in doing so Google now knows you might be interesting in finding a recipe for that chicken parmesan Susan made last week. Understanding the implications of search and how vulnerable some users are based on their insufficient knowledge of the topic is vital when it comes to protecting our data. Data is now the most valuable asset in the world. It is extremely important that we protect ours and ensure companies use it ethically, so it does not end up in the hands of the wrong person.

An experiment conducted on user perceptions of personalization by Zhang and Sundar (2019) can interesting results. They defined "reactive personalization" where certain systems have started allowing users to express their preferences before receiving personalized content and "proactive personalization" as systems that automatically push it to them. Yet, in the preliminary

research of the study, the researchers found that implementing constant calls for user action asking for permission would adversely affect the user experience. They conducted an experiment of personalization as Reactive vs. Proactive Personalization with 3 options of customized settings: Absence vs. Action vs. Cue. This was a factorial experiment of 299 subjects using a movie recommendation system. Their results concluded that interface cues suggesting customization enhanced user experience, even in the presence of proactive personalization (Zhang & Sundar, 2019). This is extremely interesting as search users are often vary of giving away their data, but in the trade-off between their privacy and information against personalization, personalization always prevails.

The article "Timing of web personalization in mobile shopping: a perspective from Uses and Gratifications Theory" by Huang and Zhou in 2018, provides an interesting angle looking at mobile shopping and how user behavior differs in the stages before-search web personalization and after it. I could not find full access to this article without purchasing, but I believe this be a relevant source to use for my Thesis.

Another important aspect of search personalization are Chatbots. During the summer of 2019, Jessica worked as a Marketing Coordinator form Lucidworks, a Search and AI company. She had the opportunity to write a blog on Question-Answering Systems (how as search engine or chatbot resolves a query) and Chatbots. Chatbots can communicate with us through Natural Language Processing or NLP. The technology has only grown over the years with Cortana, Alexa, and Google. All of which have learned how to take voice commands and convert them into text. Although they are in the early stages of maturity, the technology has seen tremendous improvements over the years (Taylor, 2019). With more experience, sentiment analytics are maturing and gaining for momentum within customer journey analytics, marketing, and building customer 360-degree views. Even if we are not aware of it, the "people" we interact with online are not people at all. Customer service chat and commercial social media interactions are increasingly managed by intelligent agents, many of which have been developed with human identities and even personalities (Radziwill, 2017).

The article, "The Consumer Side of Search" by Brewer explores the biases to be weary of with search. The article, although written in 2002 is still relevant and valuable as it discusses concerns of the Machine Learning Systems that are still being asked today. Brewer discusses the three most common kinds of admitted bias in search engines today (2002): advertisement, paid placement, and paid inclusion. Just like any physical brick-and-mortar store, certain companies pay to have advertisements in certain locations as well as product placement. And the Google search results page is no different. Companies want as much exposure to consumers as possible, so even if a customer does not click on a certain advertisement, they are still exposed to the brand and may likely research or purchase the product in the future.

The article "Measuring Personalization of Web Search" by Hannák in 2017, provides a perfect example on how the Filter Bubble, which was discussed earlier in my thesis, works. The example states how one user googling "Tahrir Square" (a landmark in Cairo, Egypt) amid the Egyptian Revolution would lead some users to receive results of news stories and videos and other links to travel agencies.

In the study "Evaluating Personalization and Customization from an Ethical Point of View: An Empirical Study" by the Vienna University of Economics and Business Administration, they put together an experiment, similar to mine, to determine how different user groups react to personalization, customization, data privacy, and the ethics around each.

Using Normative ethical theories, it is possible to conclude about whether an action is morally good or bad rather. Normative ethical theories are classified into:

Deontological theories (evaluate the act), Teleological theories (consider the consequences of an act), and Virtue ethics (concentrate on the agent's character)

In the study by the Vienna University of Economics and Business Administration, they surveyed an online population to determine their attitudes towards different systems. Their questions included the following. Their results concluded that different user groups have varying attitudes towards customization and personalization which can be attributed to ethical issues associated with tracking user behavior. The normative theory, an ethical theory, I referenced before is how they were able to determine whether personalization and customization are morally good or bad.

The concept of virtue ethics also focuses on the traits of an ethical subject, so their character, motivation, intention. The theory also stresses the nature of the organization rather than its goals or processes, which means that the usage of personal information by "responsible organizations" could serve as a benchmark for the whole industry or industries in general. Overall, the study was able to determine using the Normative theory that age, education, and internet usage impact how users favor personalization, customization, and the ethics of both.

Hypotheses

After conducting research, a model was put together to test the impact of certain factors on personalization and ultimately how it affects consumer attitudes towards personalized content. The hypothesis model can be seen in Figure 3 below:
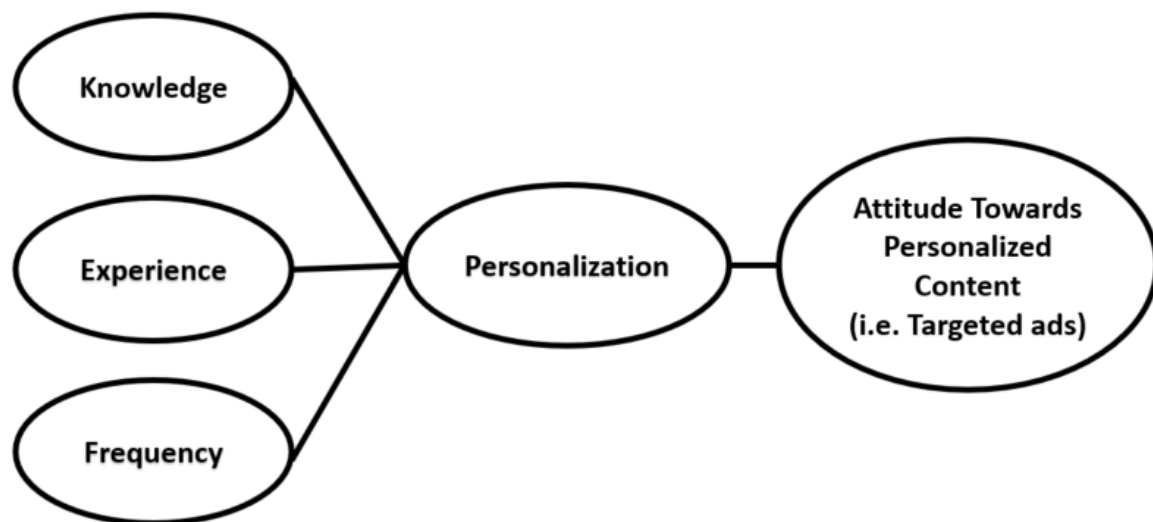
Figure 3- Hypothesis Model

H1: Users who shop more frequently online will have positive attitudes towards personalization

Hypothesis 1 was developed from the International Journal of Business Management and Commerce's study "Impact on Advertising Beliefs and Personalization on Attitude towards Advertising: Mediating Role of Advertising Value" by Tayyaba and Abbas in 2016. This study explored how personalization creates positive attitudes towards advertising value. Users that shop more often will come into contact with the various forms of personalization, and from seeing its benefits from tailoring the online experience to a user through the form of cookies or other advertising agencies or consumer profiles built, users will favor personalization because of all these factors.

H2: Personalization has a positive impact on attitude towards advertisements

Hypothesis 2 was developed from the International Journal of Business Management and Commerce's study on the "Impact of Advertising Beliefs and Personalization on Attitude towards Advertising" by Tayyaba and Abbas in 2016. The survey conducted for this study aimed to understand consumer attitudes towards mobile advertisements. This study believes certain characteristics impact advertising value. These characteristics are informativeness, entertainment, credibility, irritation, personalization.

The study's results concluded that consumers show positive attitudes towards advertisements that are considered informative, entertaining, credible, and personalized (International Journal of Business Management and Commerce, 2016).

H3: Positive attitudes towards the brand or retailer will impact purchase intentions

From the International Journal of Business Management and Commerce's article, "Impact on Advertising Beliefs and Personalization on Attitude towards Advertising: Mediating Role of Advertising Value" by Tayyaba and Abbas in 2016, the research and survey conducted proved that personalization was the leading factor in creating a positive attitude towards advertising value. This thesis goes a step further to understand how positive attitudes towards a brand or retailer affects purchase intentions or engagement.

H4: Understanding technical knowledge about personalization impacts how users interact with it

Hypothesis 4 is centered around the Protection Motivation Theory (PMT) analyzed in the Journal of Psychosocial Research on Cyberpsychology by Strycharz, Noort, and Helberger in 2019. The PMT theory identifies mechanisms that motivate a person to act. These mechanisms are knowledge and coping appraisal. Coping appraisal is avoiding situations where a person puts themselves at a greater risk of harm. From a health perspective as included in the study, "individuals knowledgeable about an illness and the ones aware of how one can get infected show higher self- and response efficacy" (Cyberpsychology, 2019). Looking at data privacy, cookies and personalization, PMT could be applied as if online users are aware of what certain technologies like Cookies do, users would be less likely to agree to them because it could potentially put their personal information in jeopardy.

Methodology

<u>Research Design</u>

A survey was conducted to test consumer attitudes on search personalization, targeted advertisements, data privacy, cookies, and social media. The survey consisted of 42 questions, 34 of which were attitude questions. The survey took each participant around 5-8 minutes to complete depending on their answers. The survey was distributed through the behavioral lab at Bryant University and shared on social media and through email.

<u>Demographics</u>

In total, 387 participants took the survey, 356 were usable responses as some respondents completed the survey in very little time or exited out of the survey before completion. Noted below is information from the survey sample size:

Age		
5	Baby Boomers	1946-1964
9	Generation X	1961-1981
14	Millennials	1981-1996
326	Generation Z	1996-2012
2	Generations outside the ones listed	
Gender		
171	Male	48%
181	Female	51%
4	Prefer not to answer	1%

Figure 4- Survey Demographics

Development of Questions

After researching previous studies, survey questions were developed around the main factors that affect attitude towards personalized content. These were Knowledge, Experience, and Frequency as discussed in the hypotheses section earlier. These factors were broken up into five subcategories concerning phone usage, targeted advertisements, appropriate forms of advertising, and social media trust. These included: Common Knowledge, Social Scrolling, Targeted Advertisements, Appropriate Advertising, and Platform Trust. One study that also followed these subcategories was the "Perceptions of Ad Personalization" study by Signs.com that surveyed 1,000 people on their knowledge of ad personalization, which platforms they see it the most, and when they think certain ads cross the privacy line (Signs.com, 2019).

<u>Social Scrolling</u>

These questions asked how long participants usually spend on their cellular devices a day, and how long they specifically use social media for. Another question also sought to understand which social media platform participants most frequently use. The social media platforms presented in the survey included: Facebook, Instagram, YouTube, Pinterest, Snapchat, Tumblr, Reddit and TikTok.

Targeted Advertisements

From the literature review and research analyzed, many sources indicate that users are exposed to thousands of advertisements a day and are often unaware of them. Questions in this survey aimed to understand what forms of advertising participants have experienced online and what actions the user has performed. These actions include clicking through a brand or company's sales email, using a brand or company's emailed coupons, or clicking on social media ads, to name a few. These were judged on a 7-point Likert scale from strongly disagree to strongly agree.

Appropriate Advertising

After understanding from participants what forms of advertising they have experienced, it was important to collect information on which advertising actions users believe are most acceptable. These were judged on a 7-point Likert scale from strongly disagree to strongly agree.

Platform Trust

Survey questions were asked to determine whether participants trust or distrust certain social media advertisements. The social media's tested were Pinterest, Instagram, YouTube, Facebook, Snapchat, Tumblr, Reddit, and TikTok. These were judged on a scale of distrust, neither trust nor distrust or trust.

Experiment

Within the survey, an experiment was conducted to test whether personalization impacts attitude towards a brand or retailer and ultimately the purchase intent. Twelve questions of the overall survey were for the experiment. The purpose of the experiment was to expose participants to targeted advertisements and test their attitudes. This was done through simulating a search experience through an interaction with a personalized advertisement.
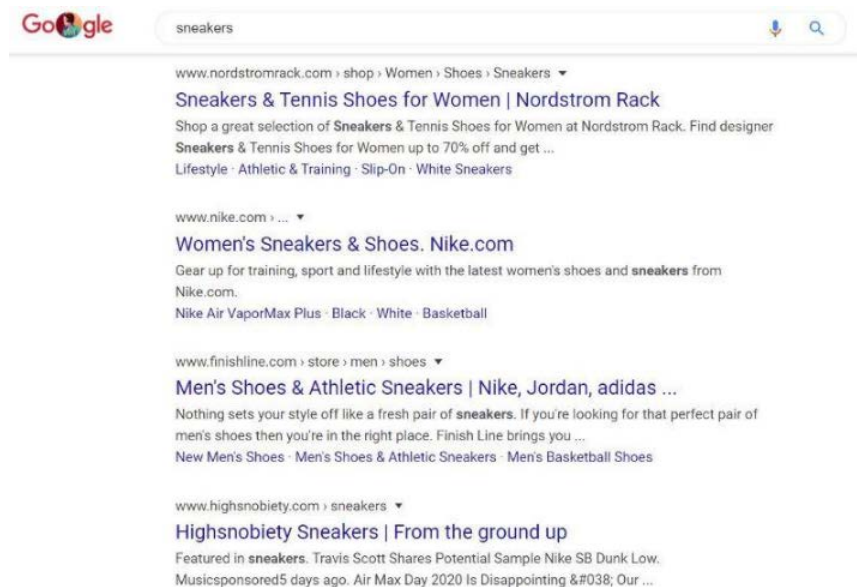

Figure 5- Experiment search result page

First participants were asked to assume they are interested in purchasing a pair of sneakers and that they open Google to conduct a search for "sneakers". Participants were then shown a Google Search Results page as seen below in Figure 5.

After seeing the results page, participants were asked their likelihood of engaging or clicking on any of the retailers (Nordstrom Rack, Nike, Finish Line or Highsnobiety). If unfamiliar, Highsnobiety is a luxury retailer that specializes in customized clothing and shoes. This was done through a 7-point Likert scale from strongly disagree to strongly agree. Participants who selected strongly disagree, disagree, or somewhat disagree, did not continue in the experiment. For those that selected they would be likely to click on any retailer, the next question asked which retailer they would most likely select. For the retailer selected the participant was asked to assume after conducting the Google search and clicking a search result, that they open Instagram and see an advertisement. The targeted advertisement participants saw was based off their selection of retailer they would most likely engage with.

If Nordstrom Rack was selected, participants saw the following ad:
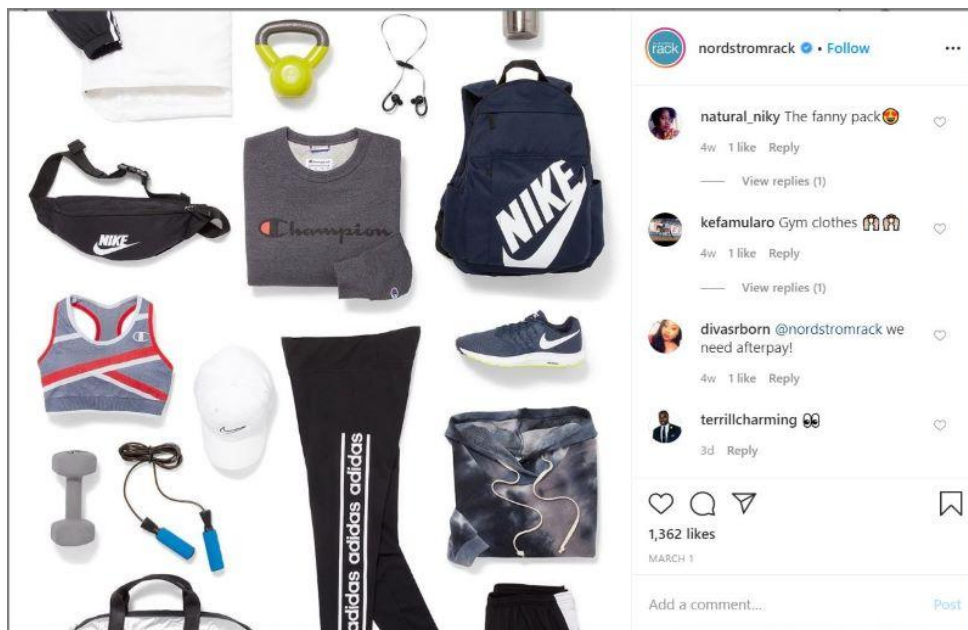
Figure 6- Nordstrom Rack Advertisement

If Nike was selected, participants saw the following ad:
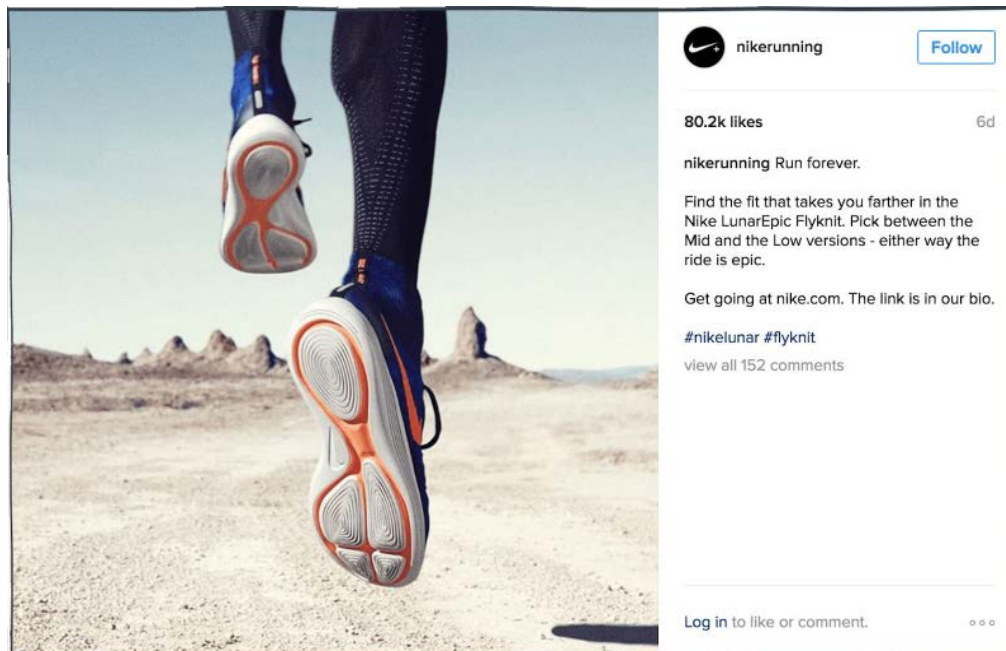
Figure 7- Nike Advertisement

If Finish Line was selected, participants saw the following ad:

Figure 8- Finish Line Advertisement

If Highsnobiety was selected, participants saw the following ad:


Figure 9- Highsnobiety Advertisement

Results of the experiment will be explored and analyzed further in the results section of this thesis.

Results

The survey results were divided into sections based on the model stated in the hypothesis section of the thesis. The results are organized in the following sections: Knowledge, Experiment, Experience, Frequency, and Data Privacy.

Knowledge

Participants were asked if they understood what search personalization was. This was judged on a 7-point Likert scale from strongly disagree to strongly agree. Figure 10 below illustrates the results with disagree and agree categories being added together for visual purposes:
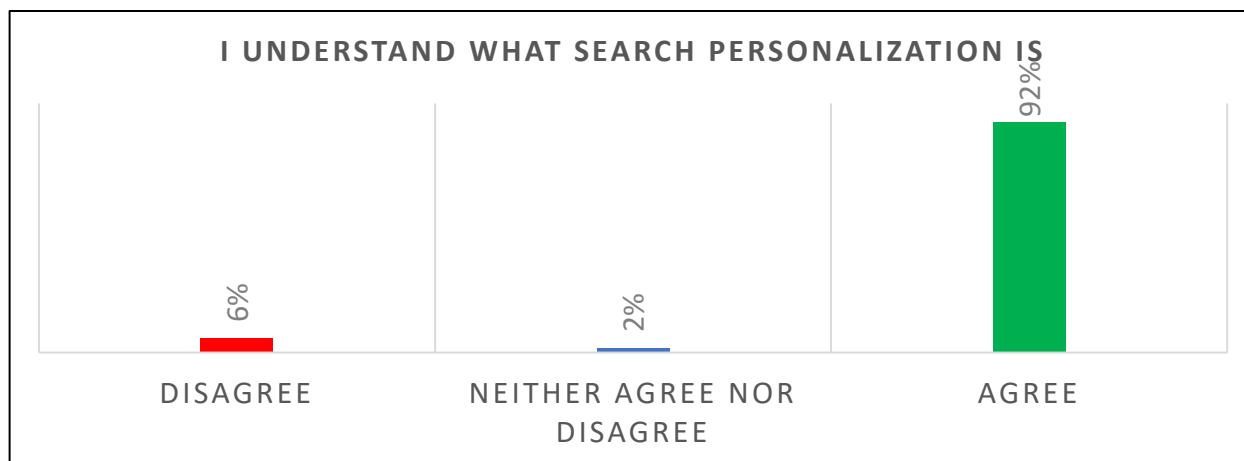
Figure 10- Knowledge of Search Personalization

As shown in Figure 10, participants who responded with somewhat agree, agree, or strongly agree are represented in the green bar above. This shows that 92% of survey respondents understood what search personalization was. For those that selected disagree, they were shown the definition of search personalization before proceeding to the next question. The definition shown is as follows, "Search Personalization refers to web search experiences that are tailored specifically to an individual's interests by incorporating information about the individual beyond the specific search"

The next question falling into the Knowledge category was if participants believed personalization impacts their purchase decisions as consumers. Similar to the previous question, this was judged on a 7-point Likert scale from strongly disagree to strongly agree. The results can be seen in Figure 11 where most participants at 82% agreed that personalization impacts their purchase decisions.
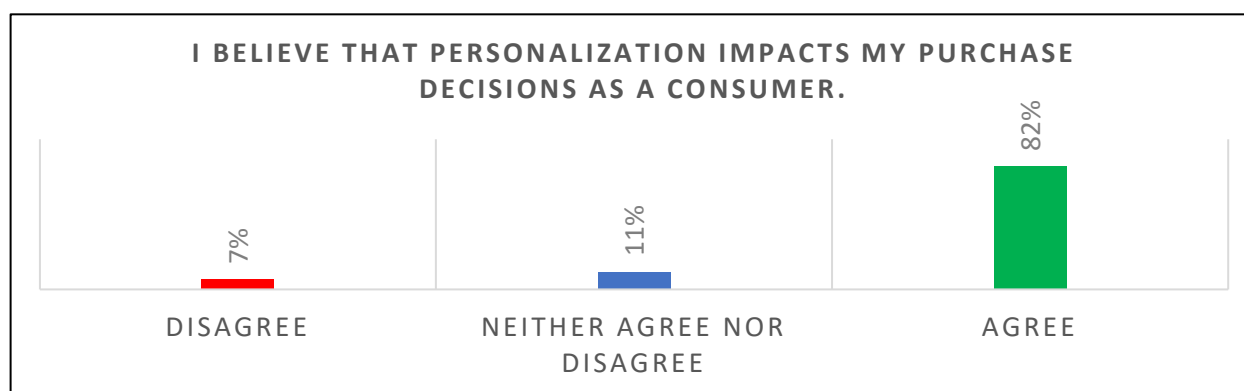
Figure 11- Personalization's impact on purchase decisions

From these results, the first hypothesis could be tested. This hypothesis states that "Users who shop more frequently online will have a positive attitude towards personalization". A paired t-test was conducted for participant responses on the number of monthly purchases they make a month to whether they believe personalization impacts their purchase decisions. Figure 12 shows the results for the test on the first hypothesis.

	Average monthly online purchases	I believe that personalization impacts my purchase decisions as a consumer
Mean	1.480620155	5.511627907
Variance	0.470324612	1.31431686
Observations	129	129
Pearson Correlation	0.062393083	
Hypothesized Mean Difference	0	
df	128	
t Stat	-35.25423729	
P(T<=t) one-tail	4.58409E-68	
t Critical one-tail	1.656845226	
P(T<=t) two-tail	**9.16818E-68**	
t Critical two-tail	1.97867085	

Figure 12- Hypothesis 1 Test Results

Highlighted in blue is the P-value. For a paired sample test to have statistical significance, this value needs to be below 0.05. As indicated above this value is below this amount and therefore is statistically significant, meaning that there were less possibility participants chose an answer because of chance, but rather responses on one question affected the other.

Experiment

As explained earlier in this thesis, survey participants were exposed to a targeted advertisement as part of the experiment. After seeing the Google results page with the options to engage with Nordstrom Rack, Nike, Finish Line, or Highsnobiety, only 7% of survey participants disagreed that they would be likely to click on any of the retailers and therefore did not proceed on in the experiment. The retailer participants reported they would be most likely to engage with was Nike at 78% followed by Nordstrom Rack at 14%, Finish Line at 7%, and finally Highsnobiety at 1%. In order to test my second and third hypotheses, participants were asked their attitude towards the retailer they selected on scale from 1 to 3, 1 being negative attitude and 3 being positive. These scales included: Unappealing/Appealing, Bad/Good, Unpleasant/Pleasant, Unfavorable/ Favorable, and Unlikeable, Likeable. Figure 13 shows the results for attitude towards the retailer.
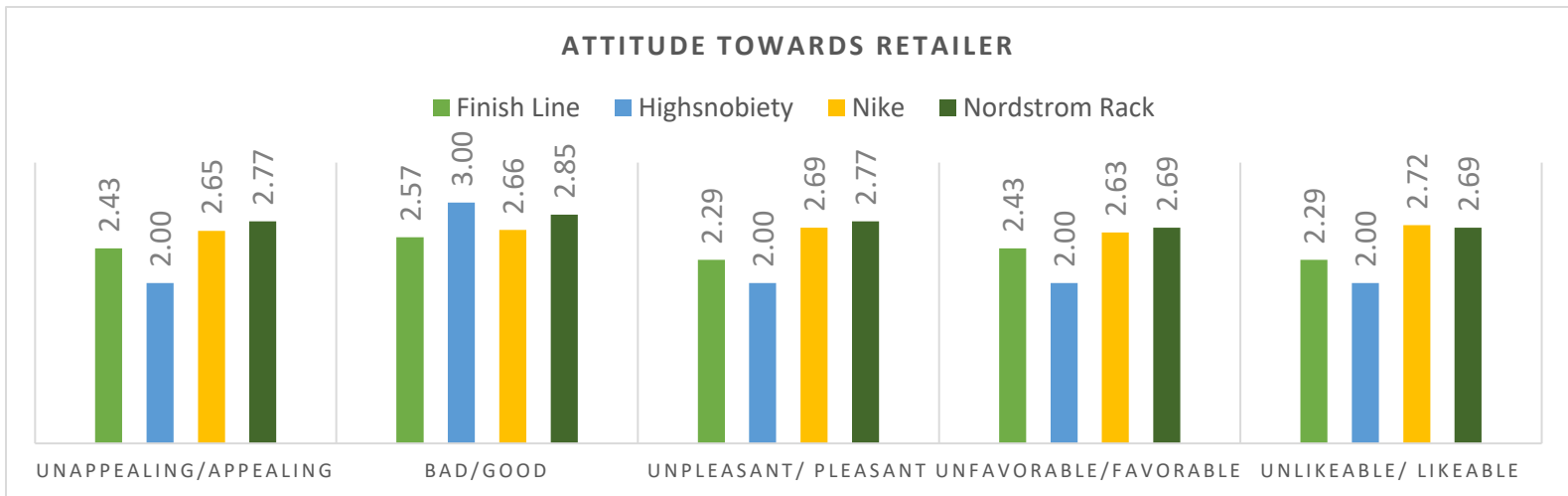
Figure 13- Consumer Attitude towards Retailer

After collecting this data, the second hypothesis could be tested. H2 states that "Personalization has a positive impact on attitude towards advertisements". A second paired sample test was conducted to test for statistical significance. As previously stated, for there to be a statistical significance, the P-value needs to be below 0.05. As shown in the figure 14 below, the P-value is very below the 0.05 indicating that there is a statistical significance between knowledge of personalization and attitude towards a targeted advertisement.

	I understand what search personalization is	Attitude
Mean	5.694444444	2.642592593
Variance	1.279595016	0.228075459
Observations	108	108
Pearson Correlation	0.14887425	
Hypothesized Mean Difference	0	
df	107	
t Stat	27.32880949	
P(T<=t) one-tail	2.27221E-50	
t Critical one-tail	1.659219312	
P(T<=t) two-tail	4.54443E-50	
t Critical two-tail	1.98238337	

Figure 14- Hypothesis 2 Test Results

After answering the question on attitude towards the specific retailer they "interacted" with, participants were asked their purchase intentions for the retailer on a scale of 1 to 3, 1 being lowest purchase intention and 3 being the highest. These scales included: Never/Definitely, Definitely do not intend to buy/ Intend to buy, Very low purchase intent/ Very high purchase intent, Definitely not buy/ Definitely buy, and Probably not buy it/ Probably buy it. The results for purchase intentions can be seen in Figure 15 below.
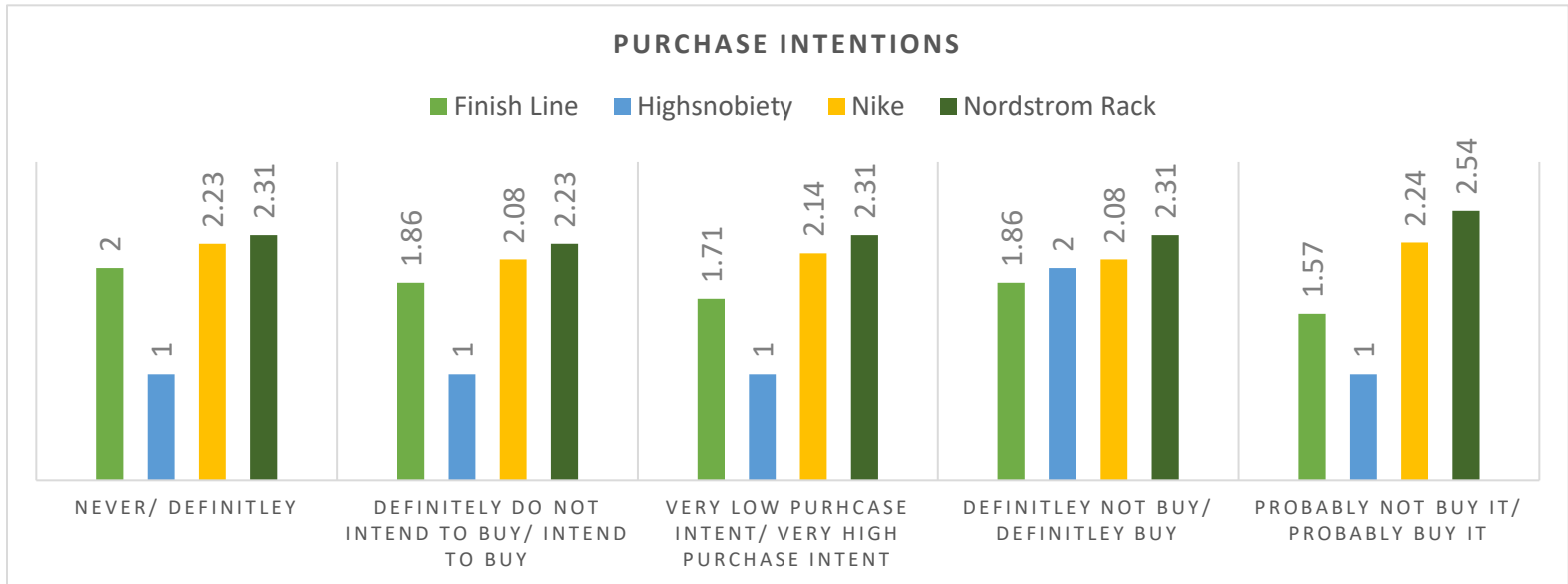
Figure 15- Retailer Purchase Intentions

Following the observation and analysis of the results, it was determined that Highsnobiety had the lowest purchase intention, however this was attributed to only one survey participant choosing to interact with the retailer.

After collecting this data, the 3rd hypothesis could be tested, H3 states that positive attitudes towards the brand or retailer will impact purchase intention. A paired sample test was conducted to test this hypothesis. Again, for there to be a statistical significance, the P-value needs to be below 0.05. The results of the test can be seen in Figure 16 below, where the P-value highlighted in blue is below 0.05 so therefore there is a statistical significance between attitude towards the retailer and purchase intent.

	Attitude	Purchase Intent
Mean	2.653733892	2.172295012
Variance	0.000618857	0.005712321
Observations	5	5
Pearson Correlation	0.343343726	
Hypothesized Mean Difference	0	
df	4	
t Stat	15.16378498	
P(T<=t) one-tail	5.51319E-05	
t Critical one-tail	2.131846786	
P(T<=t) two-tail	0.000110264	
t Critical two-tail	2.776445105	

Figure 17- Hypothesis 3 Test Results

Experience

To test for experience, questions were asked in relation to participant social scrolling tendencies. Most survey participants spend 2-6 hours on their phone a day and 2-6 hours on social media applications. Figures 17 and 18 illustrate these numbers.
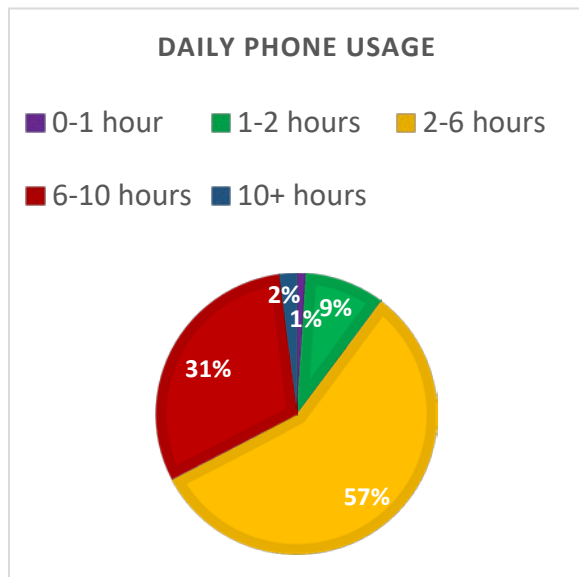
Figure 19- Daily Phone Use (Hours)
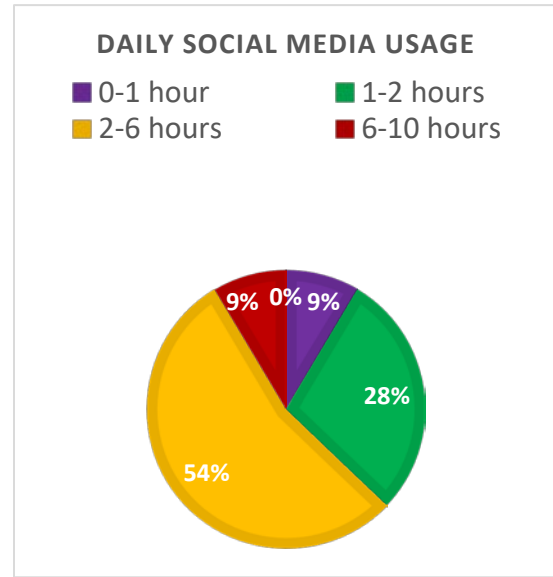
Figure 18- Daily Social Media Use (Hours)

Participants were then asked which social media applications they use most frequently. These included Facebook, Instagram, YouTube, Pinterest, Snapchat, Tumblr, Reddit, and TikTok. Instagram has the highest social media use at 47%, followed by Snapchat at 20%, TikTok at 19%, and Facebook at 11%. The following graph represents social media platform use:
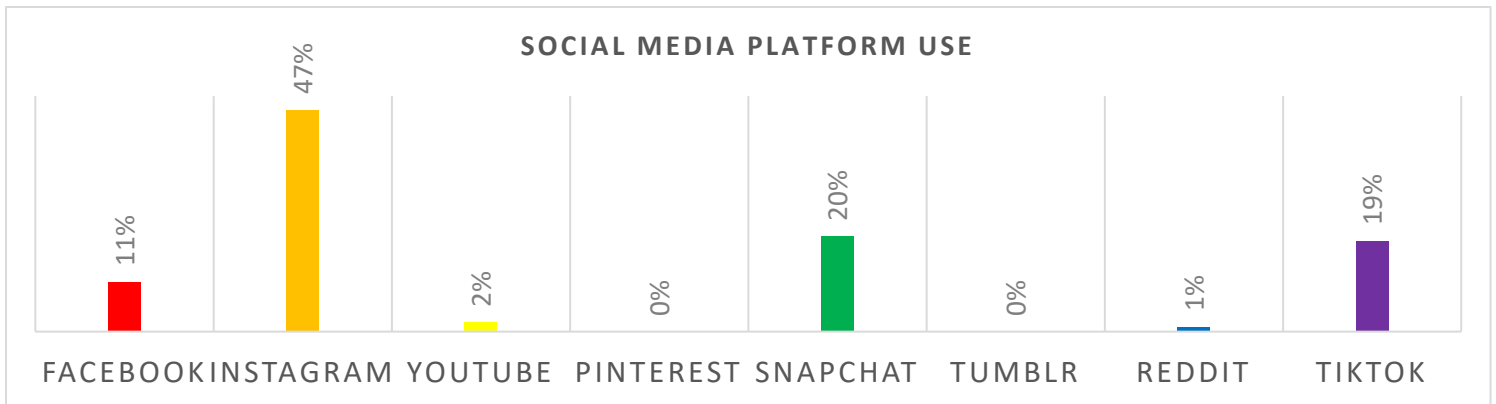
Figure 20- Social Media Platform Use

The next questions participants were asked was on which social media platform they believe are exposed to the most personalized advertisements. 71% of survey respondents believed it was Instagram, 24% Facebook, 3% YouTube, and 2% Snapchat. When first analyzing the results, it was clear that Instagram was the most popular. This was attributed to the majority of survey respondents being from Generation Z (born between 1996 and 2012) and although this was believed to be a disadvantage at first, the goal of this thesis is to raise awareness and prompt further education of personalization, so from these results it was beneficial to see that respondents are able to identify what targeted advertisements are and on what platform they see them the most.

The next category tested in the survey was platform trust. Participants were asked to identify their trust or distrust in social media applications, 1 being distrust, and 3 trust. Figure 20 represents the applications with the highest trust and distrust. The option "neither trust nor distrust" was removed from the graph as many participants selected this for application such as Pinterest, Tumblr, and Reddit where very few participants mainly use these applications and it does not accurately evaluate the question.
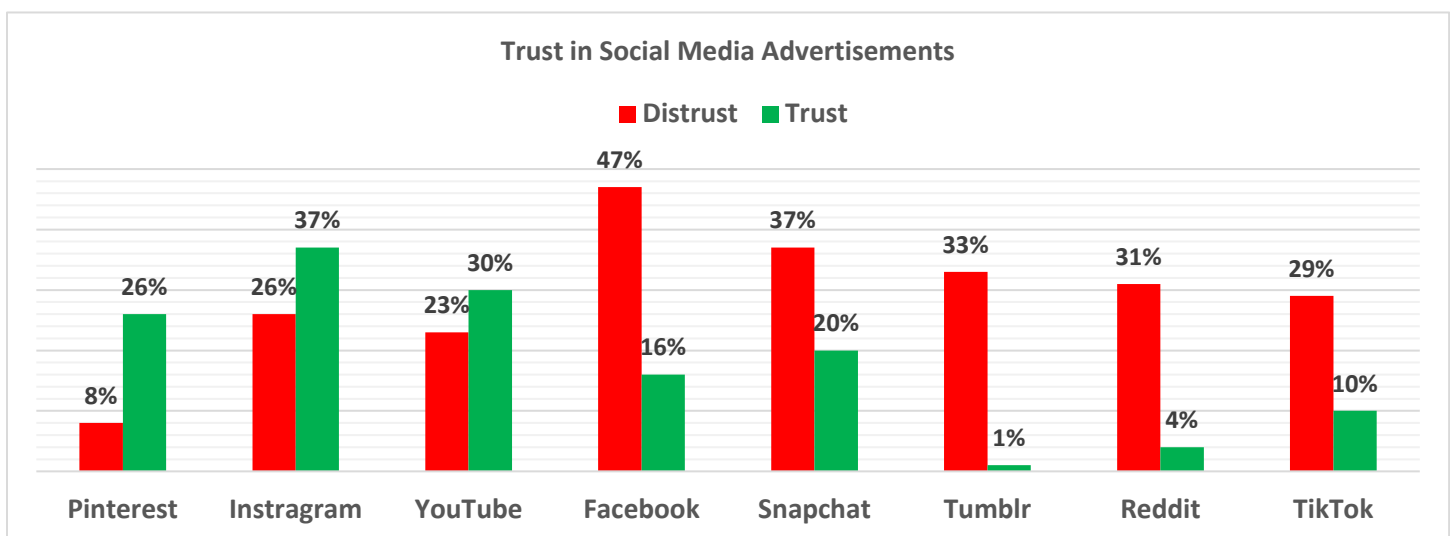

Figure 21- Social Media Advertisement Trust or Distrust

Looking at these results, it is easy to identity that the platform with the most distrust is Facebook shortly followed my Snapchat. Conversely, Instagram is the most trusted application. When comparing these results to previous questions, it is interesting to note how 71% of survey participants identified Instagram as the platform they see the most personalized ads, yet it is the platform they trust the most.

Moving on from trust, participants were asked about experiences with certain advertising situations online. The following are the experiences along with the results. Overall, most participants agreed that they had experienced each situation before. These were judged on a 7-point Likert scale from strongly disagree to strongly agree. For the visual purposes of the graph, somewhat agree, agree, and strongly agree were grouped together, and the same for somewhat disagree, disagree, and strongly disagree.

Advertisements for recently visited websites:

ADVERTISEMENTS FOR RECENTLY VISITED WEBSTIES

AGREE — 94%

NEITHER AGREE NOR DISAGREE — 1%

DISAGREE — 5%
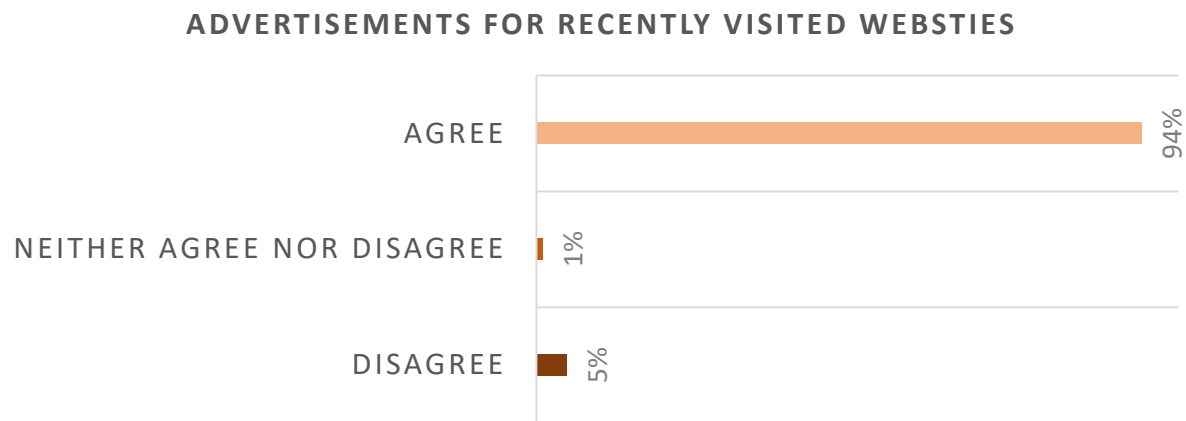
Figure 22- Ad for a recently visited website

Product recommendation based on purchase history:

PRODUCT RECOMMENDATION BASED ON PURCHASE HISTORY

AGREE — 97%

NEITHER AGREE NOR DISAGREE — 2%

DISAGREE — 1%
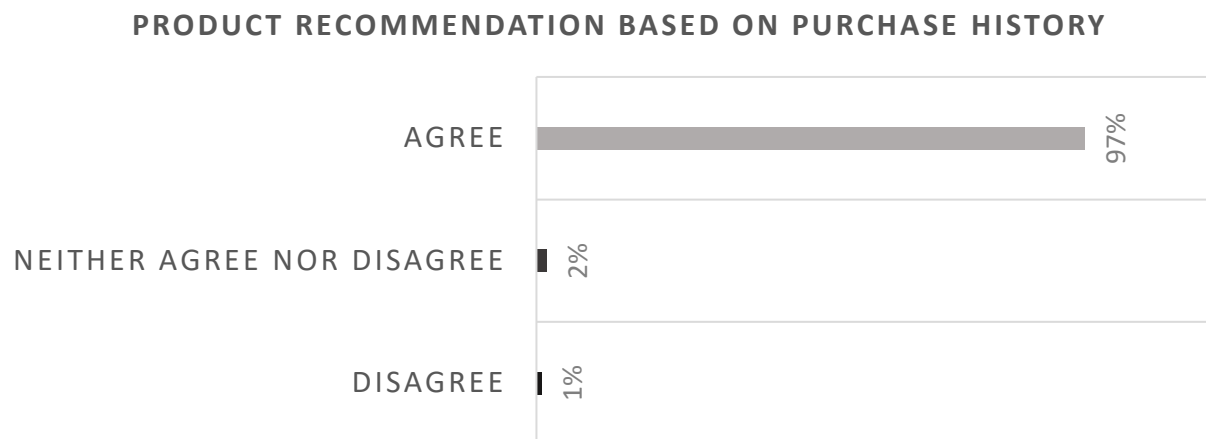
Figure 23- Product recommendation based on purchase history
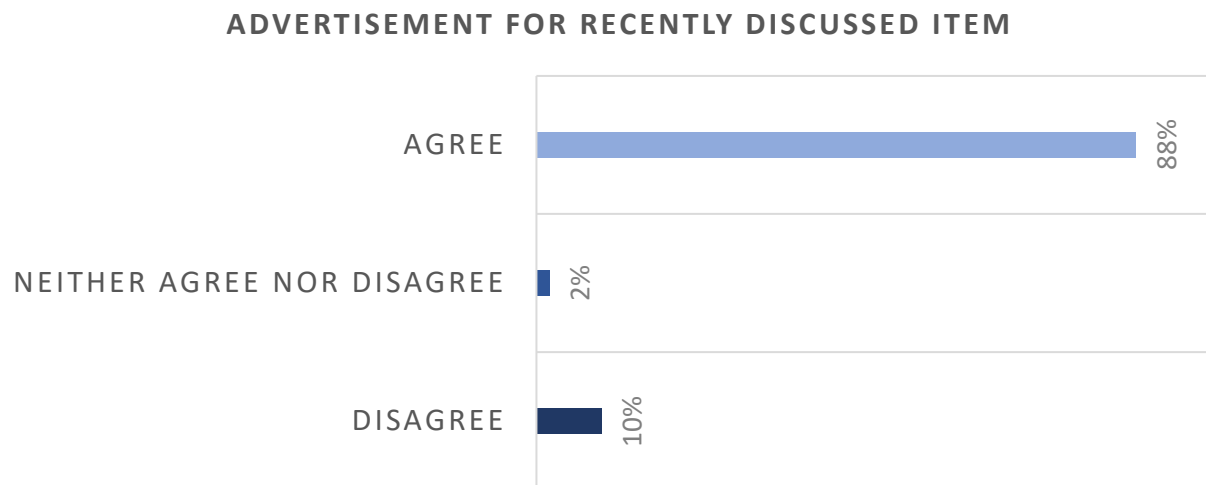
Reminder email about items left in shopping cart:

REMINDER EMAIL ABOUT ITEMS LEFT IN SHOPPING CART
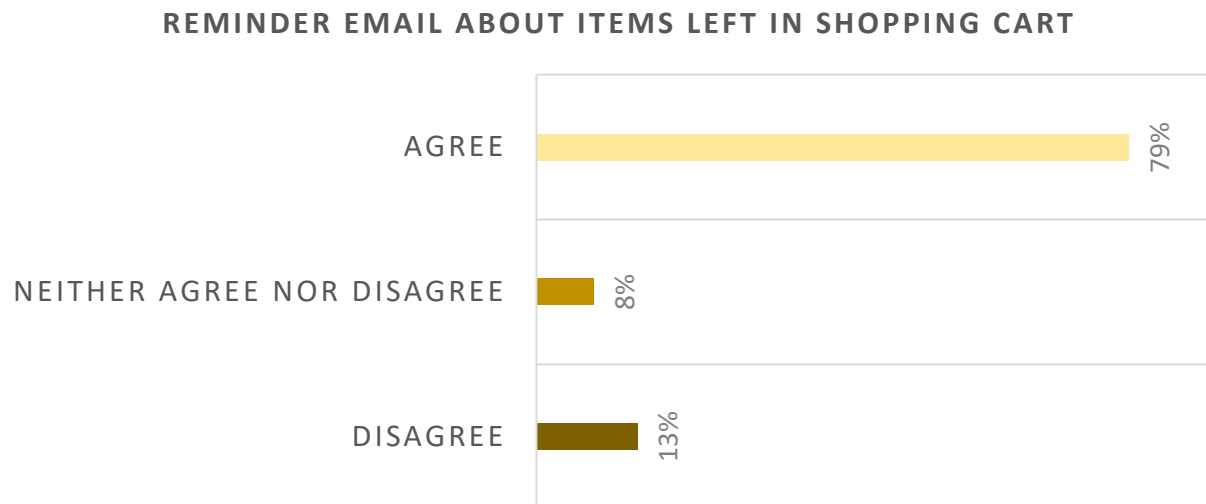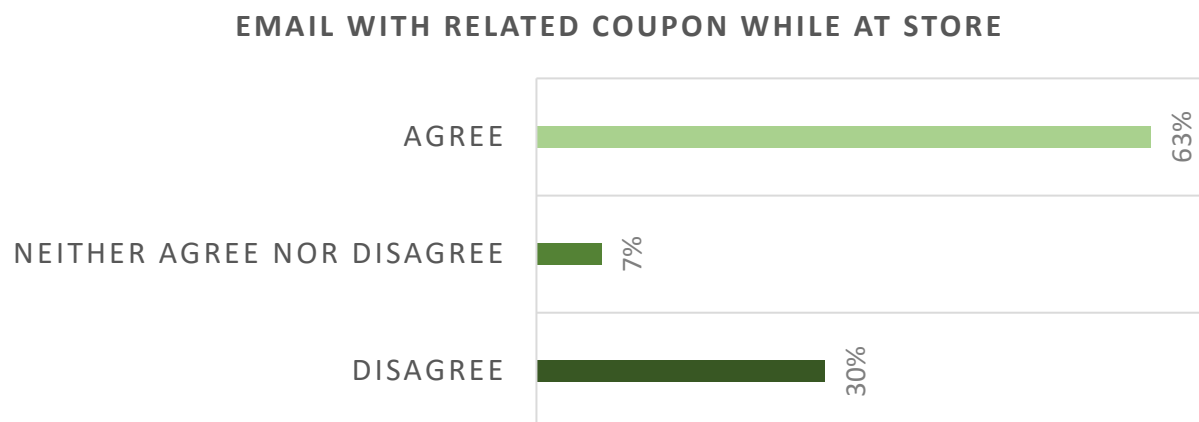

Figure 24- Email about items left in shopping cart

Advertisement for recently discussed item:

ADVERTISEMENT FOR RECENTLY DISCUSSED ITEM

Figure 25- Ad for recently discussed item

Email with related coupon while at store:

EMAIL WITH RELATED COUPON WHILE AT STORE

Figure 26- Email with related coupon while at a store

Frequency

To test frequency, participants were asked to determine which of the following forms of advertising they believe are most appropriate. This question was evaluated on a 7-point Likert scale from strongly disagree to strongly agree. The majority of participants deemed the following advertising actions acceptable: Product recommendation based on purchase history, Birthday email from company, Reminder email about item left in shopping cart, Advertisement for recently visited website and Email with a related coupon while at store. However, there was one form of advertising 63% of survey respondents disagreed was appropriate. This was for advertisements for a recently discussed item. After analyzing the results is was evident that participants did not condone the behavior of technology, applications, and websites listening to conversations to personalize content. (The Figure displaying the results can be seen in Appendix I - Appendix VI)

Cookies

As defined by Indiana University, cookies are messages that web servers pass to a user's web browser when you visit Internet sites. A user's browser stores each message in a small file called a cookie. These files typically contain information about a user's visit to the web page, as well as any information they have volunteered, such as their name and interests.

The purpose of including cookies in the survey and the thesis in general was to relate back to the 3rd hypothesis and its relation to the Protection Motivation Theory. The PMT theory states that if a user has the knowledge of a particular topic and understands how it functions, they will be more likely to avoid a situation where their personal information could be comprised such as not giving permission to cookies or avoiding certain applications.

Participants were asked if they were aware of electronic cookies and what they are. 83% of participants agreed they understood what they are and 13% disagreed. The next question

participants were asked is if they frequently give websites access to their cookies. 75% of participants agreed with the statement and 14% disagreed. The last question on cookies was to determine if participants allow cookies to the notification on a user's screen disappears. 76% agreed they allow cookies for this reason and 14% disagreed.

With these results, the 4th hypothesis could be tested. H4 states that "Understanding technical knowledge about personalization impacts how users interact with targeted advertisements. Two more paired sample tests were conducted to determine if there was a statistical significance. The first paired sample test is shown in the table below. For there to be a statistical significance, the P-value needs to be less than 0.05. As the value in blue is greater than 0.05, there is no statistical significance between whether participants were aware of cookies and if they frequently give websites access to them. This means that there was a possibility it was because of chance rather than one question and answer affecting another.

The second paired sample test was to determine if there was a significance between participants frequently giving websites access to their cookies and if they allow access to the notification on the screen disappears. As noted by the blue row in the table below, the P-value is greater than 0.05 meaning that there was no statistical significance. This again means that there was a possibility it was because of chance rather than one question and answer affecting another.

Data Privacy
The second half of the survey focused more on data privacy rather than personalization. These questions were included to determine if participants are concerned about their data privacy and personal information when browsing and shopping online. Participants were asked if they are concerned about their privacy and personal data online. This was judged on a 7-point Likert scale from strongly disagree to strongly agree, but for visual purposes, somewhat disagree, disagree, and strongly disagree are grouped together along with the responses for agreeing. The results can be seen in Figure 26.
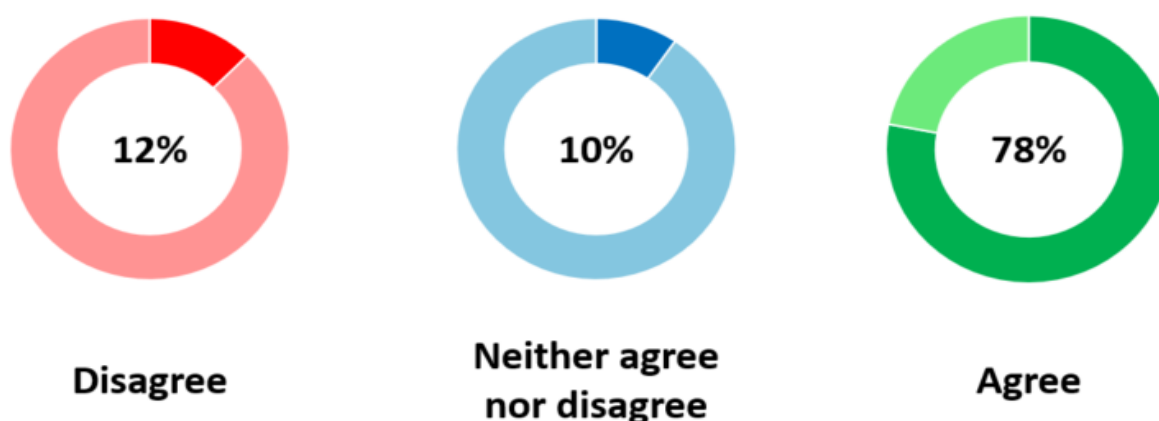

Figure 27- Concern for data privacy and personal information online

These results show that most survey participants are concerned about their data privacy online. The next question asked was if participants believe their phone or laptop actively listens to their conversations to show them personalized advertisements. The results can be seen below:

Disagree 11%   **Neither agree nor disagree** 6%   **Agree** 83%
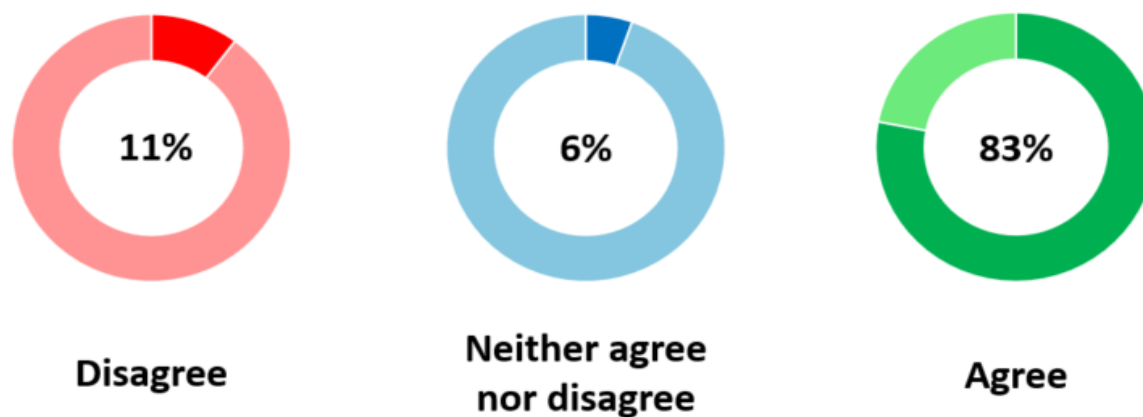
Figure 28- Concern over phone/ laptop actively listening to conversations

With 83% of participants agreeing that they believe their phone or laptop listens to them is interesting as 63% of participants did not believe their technology listening to them to show personalized content was not an appropriate form of advertising. The last question in relation to data privacy was whether participants are confident that their personal information is kept confidential when buying products online. The results are represented in the visuals below:

Disagree 57%   **Neither agree nor disagree** 11%   **Agree** 31%
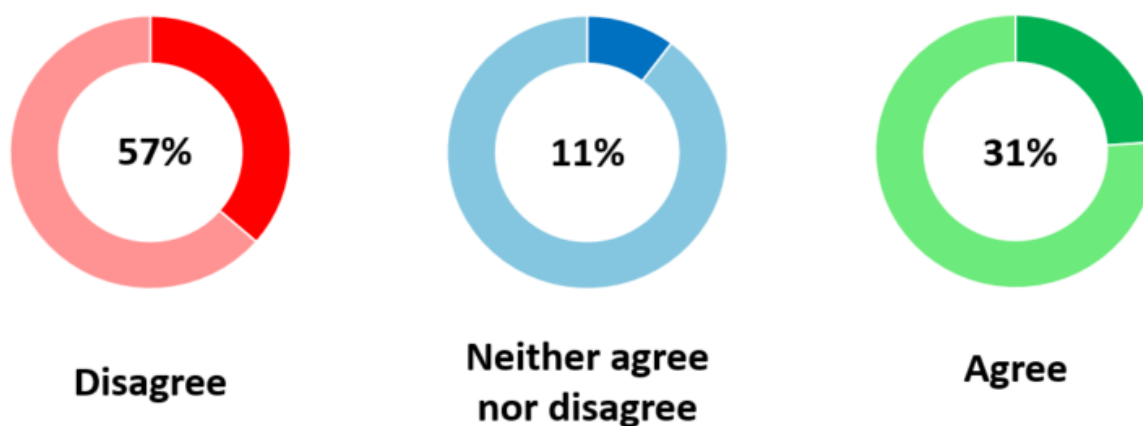
Figure 29- Confidence in personal information kept confidential when purchasing products online

The results for this question are interesting as although 57% of participants disagreed that their personal information is kept confidential, 31% agreed that they believe it is. For those that believe their information is kept confidential, it would be interesting to see what websites or applications they most frequently use and trust.

COVID-19

The last question of the survey was about the current Corona Virus pandemic. Participants were asked with the ongoing pandemic, if they are more likely than before to risk their data privacy in order to purchase necessary products and supplies online. The results for this question were very interesting. Like other questions, it was judged on a 7-point Likert scale from strongly disagree to strongly agree. However, for visual purposes those who answered somewhat disagree, disagree, or strongly disagree are grouped into the same category and the same for those who responded agree. The results can be seen in Figure 29 below.
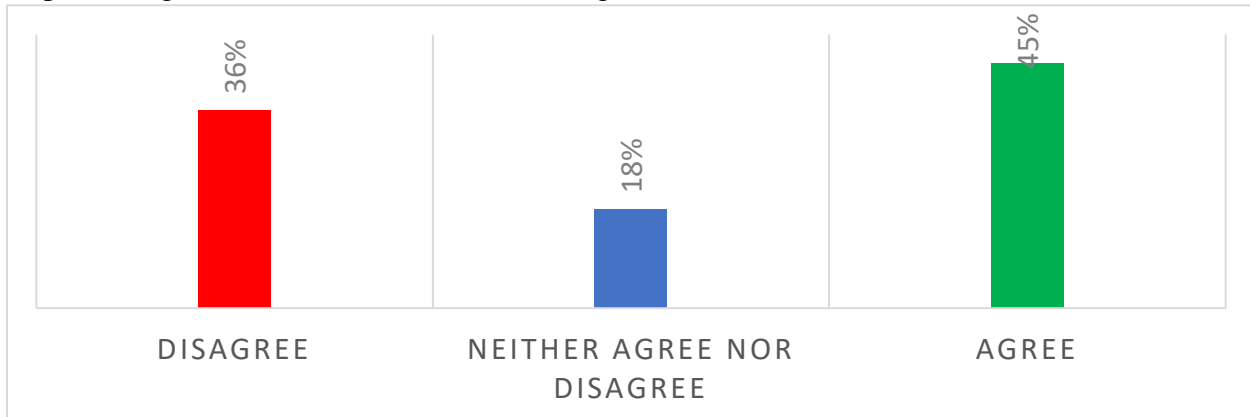
Figure 30- COVID-19 and data privacy

These results are very interesting. Although 45% of participants believe getting necessary supplies is more important than data privacy online, 36% disagree. Even with the current state of the US and the world on a whole, some users are still protecting their information online even if it means waiting for products. However, if participants understood the personal information that is collected and stored from certain bad websites, would they still purchase from them when desperate?

The results for survey questions not included in the results to prove hypotheses can be found in Appendix I through Appendix XII.

Survey Limitations

The first limitation with the survey was most of the participants were Bryant University students. Even though the number of participants was an acceptable amount at 356, 91% of participants are from Generation X (born between 1996 and 2012). For the purpose of this survey, the pool of applicant ages could have been more diverse to understand the difference in perceptions and knowledge of personalization in different generations.

Self-reporting was also a survey limitation. Certain questions asked about number of monthly online purchases and cell phone and social media usage were self-reported and may have not been entirely accurate.

The last limitation was that for the experiment within the survey, it would have been interesting to see each participant's search results when "sneakers" is entered based on their own personalization algorithm.

Conclusion

From the research and survey conducted, it is evident that internet users are concerned about their personal data and privacy. Just as the internet and machines learn and adapt every day, privacy laws are always a step behind, leaving a loophole for malicious websites and hackers to steal, store, and share personal information.

Personalization does indeed impact purchase decisions. When online users have a positive interaction with a brand or website through the form of advertising, they are more likely to make a purchase decision. However, there is concern over acceptable forms of advertising, such as taking information from conversations.

Although some internet users do not agree with targeted advertisements, and are unlikely to engage with them, they would still prefer to see personalized ads over objectional. Meaning that they would still like to see personalized content over generic advertisements.

Overall, the analysis conducted from the survey results determined that positive attitudes towards a brand or retailer lead to higher purchase intentions, which is the main goal of online and personalized advertising.

Lastly, one of the most important components when searching online or using the internet in general is to be safe. While there are many safety measures to protect users on the internet, there are still hackers and bad websites out there stealing our personal information which creates a negative attitude towards data storage.

Despite the plethora of knowledge online on cookies, targeted advertisements, and ways to protect yourself on the internet, it is easy to forget which is when personal information is shared. This ultimately creates a negative attitude towards personalization and decreases the effectiveness of personalized content online.

The Future of Personalization

As the internet and machines continue to grow, learn, and adapt, privacy laws need to keep up with the changing technology to continue to protect user information online. When it comes to cookies, laws vary depending on the region of the world you live in. For example, in Europe due to General Data Protection Regulation (GDPR) rules online users must explicitly "opt-in" to sharing their information via cookies. In contrast, in the United Stated, you must explicitly "opt-out" of these data sharing techniques. Many companies often disguise their cookie sharing notices as asking users to participant in company research, falsely leading them to share their information.

Safety on the internet is extremely important. As technology as grown immensely over the past 15 years or so, younger generations have access to the internet, and if not educated properly can accidentally give away their information and comprise their safety online without even realizing.

From a retail perspective, the future of personalization is in omnichannel. This is the way a user interacts with everything online related to a topic, retailer or vendor.

A major factor in creating the omnichannel experience are signals. Signals are the new cookies. Where cookies were only able to look at browser search, document views, and purchase history, signals can look at much more. Signals are able to access information such as clicks, recommendations and reviews which ultimately contributes to a user profile and allows retailers such as Amazon to personalize content to a user spanning various industries such as groceries, movies, technology, and news. This relates back to Garners article in 2019 on how privacy ideas often prevent great customer experiences. One very important quote is that "organization that combine identity data with behavioral data will outpace those that don't". The internet is an extremely competitive landscape, and to keep up, personalization is key.

Acknowledgements

Appendices

I.   Is a product recommendation based on purchase history an acceptable form of advertising?

PRODUCT RECOMENDATION BASED ON PURCHASE HISTORY

AGREE	76%
NEITHER AGREE NOR DISAGREE	10%
DISAGREE	14%
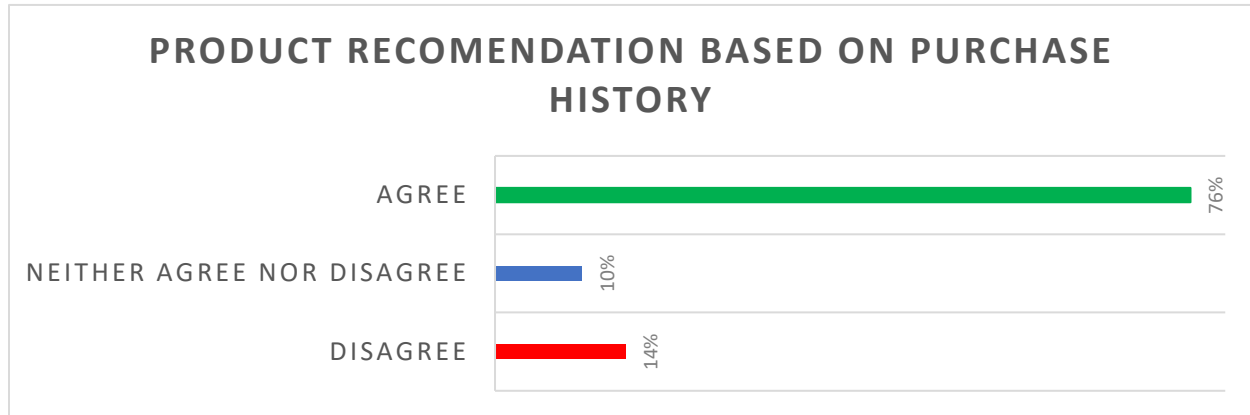
II.   Is a Birthday email from a company an acceptable form of advertising?

BIRTHDAY EMAIL FROM COMPANY

AGREE	88%
NEITHER AGREE NOR DISAGREE	3%
DISAGREE	9%
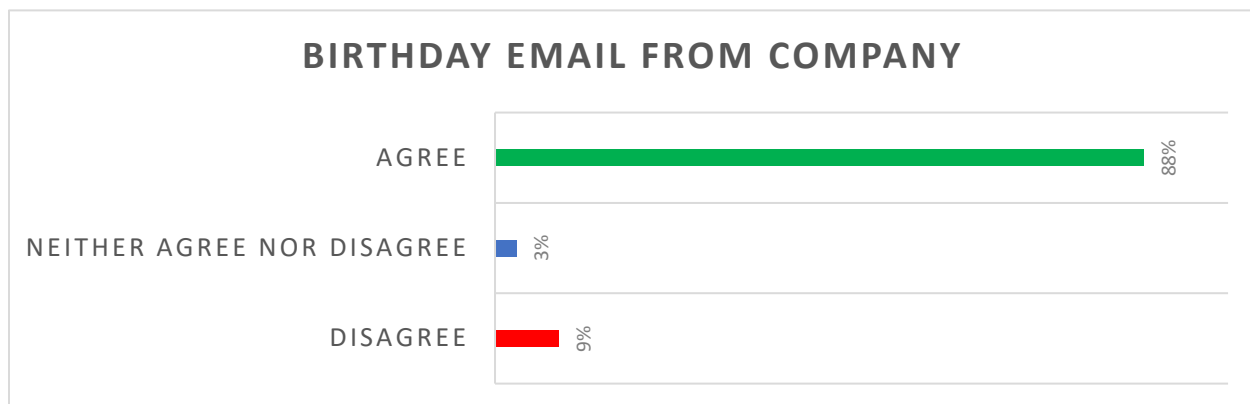
III.   Is a reminder email about items left in shopping cart an acceptable form of advertising?

REMINDER EMAIL ABOUT ITEM LEFT IN SHOPPING CART

AGREE	72%
NEITHER AGREE NOR DISAGREE	11%
DISAGREE	17%
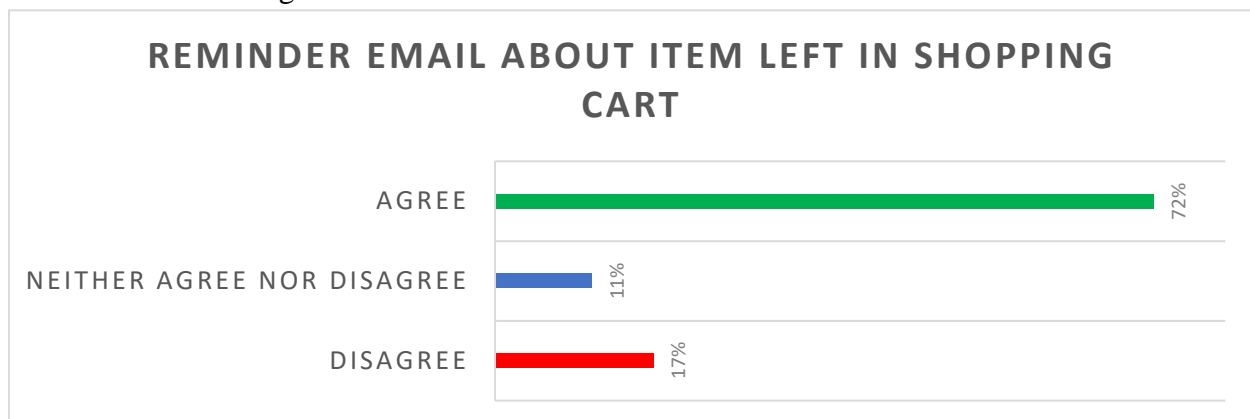
IV.   Is an advertisement for a recently visited website an acceptable form of advertising?

ADVERTISEMENT FOR RECENTLY VISITED WEBSITE

- AGREE — 60%
- NEITHER AGREE NOR DISAGREE — 14%
- DISAGREE — 26%
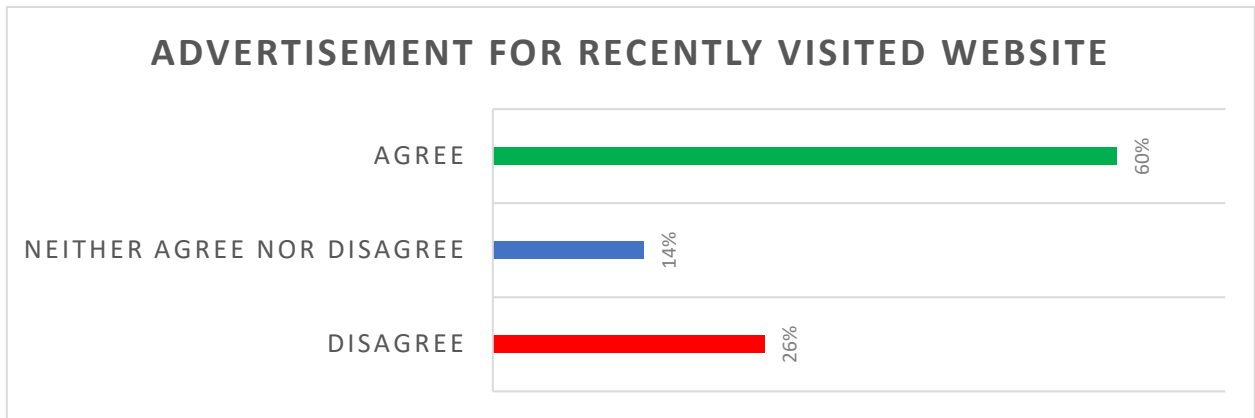
V.   Is an email with a related coupon while at a store an acceptable form of advertising?

EMAIL WITH A RELATED COUPON WHILE AT A STORE

- AGREE — 67%
- NEITHER AGREE NOR DISAGREE — 12%
- DISAGREE — 21%
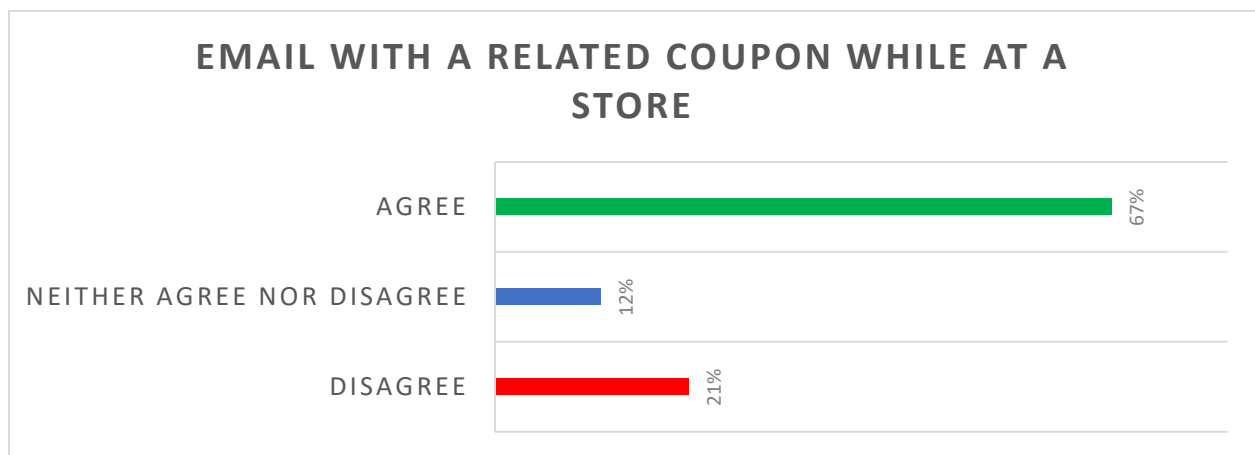
VI.   Is an advertisement for a recently discussed item an appropriate form of advertising?

ADVERTISEMENT FOR A RECENTLY DISCUSSED ITEM

- AGREE — 23%
- NEITHER AGREE NOR DISAGREE — 14%
- DISAGREE — 63%
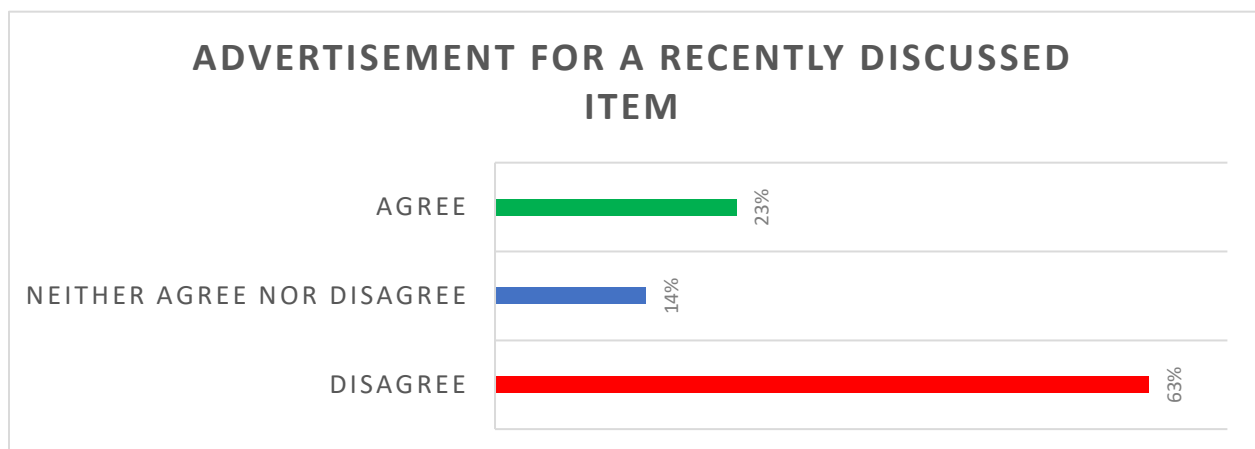
VII.   Do users have trouble finding what they search for?

When searching for a product, user has trouble finding what they are looking for because the website does not understand the search

Response	Percentage
Strongly disagree	~11%
Disagree	~44%
Somewhat disagree	~21%
Neither agree nor disagree	~8%
Somewhat agree	~13%
Agree	0%
Strongly agree	~1%
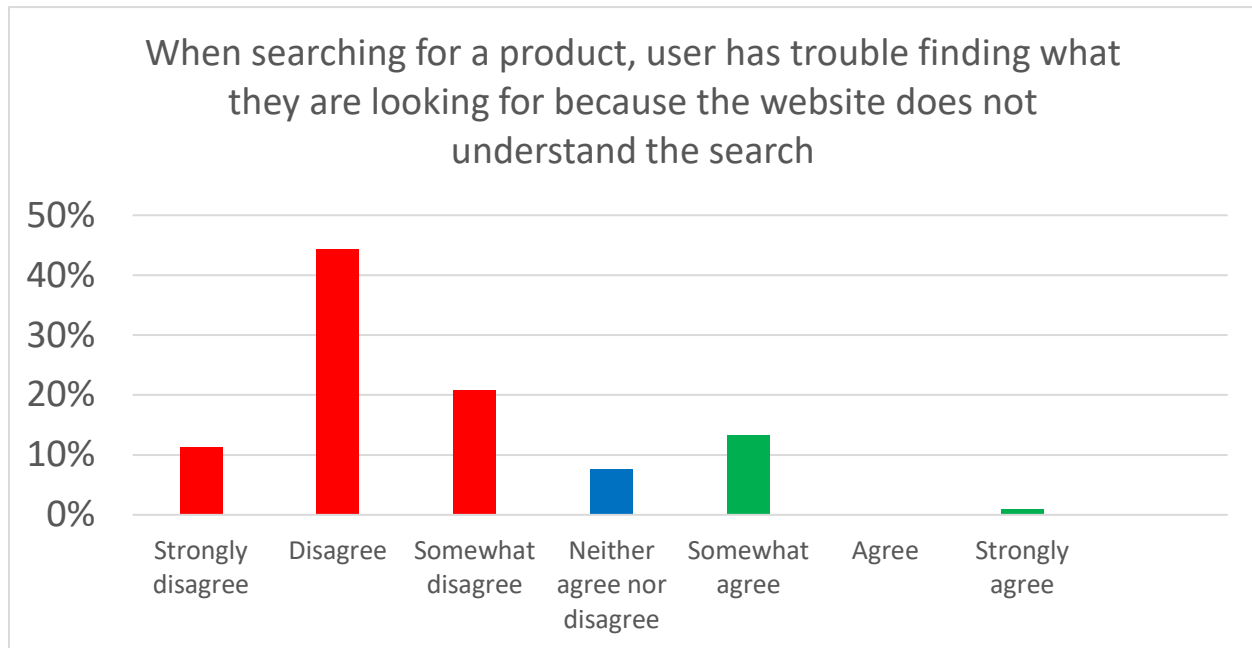
VIII.   Products users purchase most frequently

PRODUCTS MOST FREQUENTLY PURCHASED

Product	Percentage
TOYS & GAMES	1.14%
	3.41%
	4.55%
GROCERIES	5.68%
	0.57%
PERSONAL CARE	17.33%
	10.23%
JEWELRY	3.13%
	7.39%
BOOKS	9.66%
	12.22%
CLOTHING	24.72%
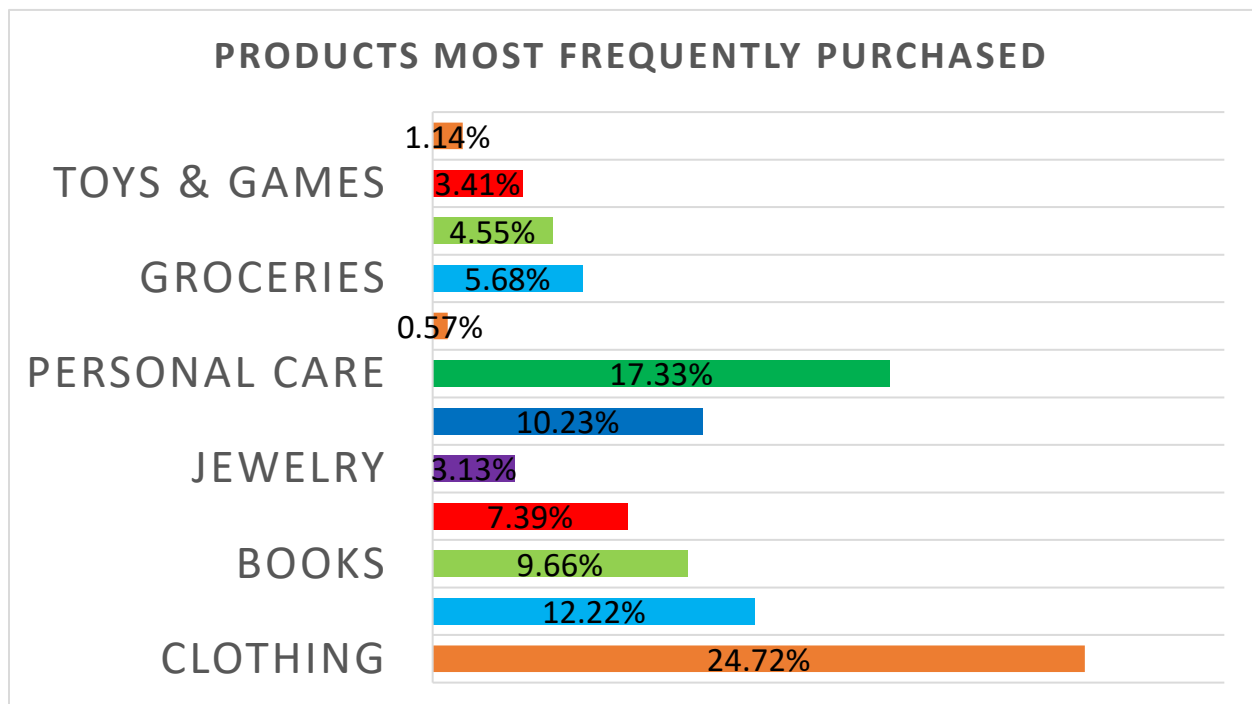
IX.   Primary Search Engine
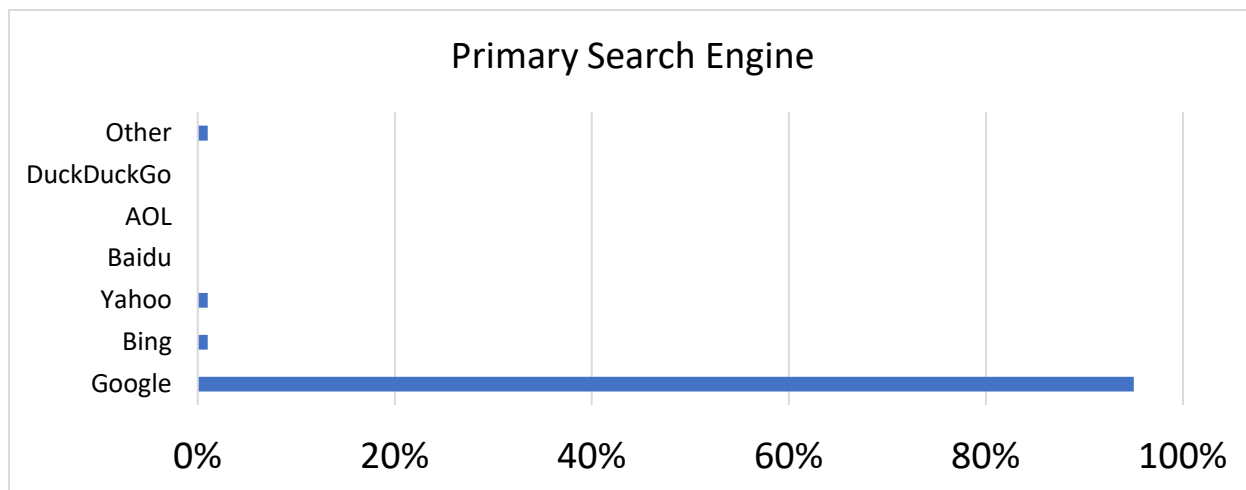
X.   User feelings towards data storage
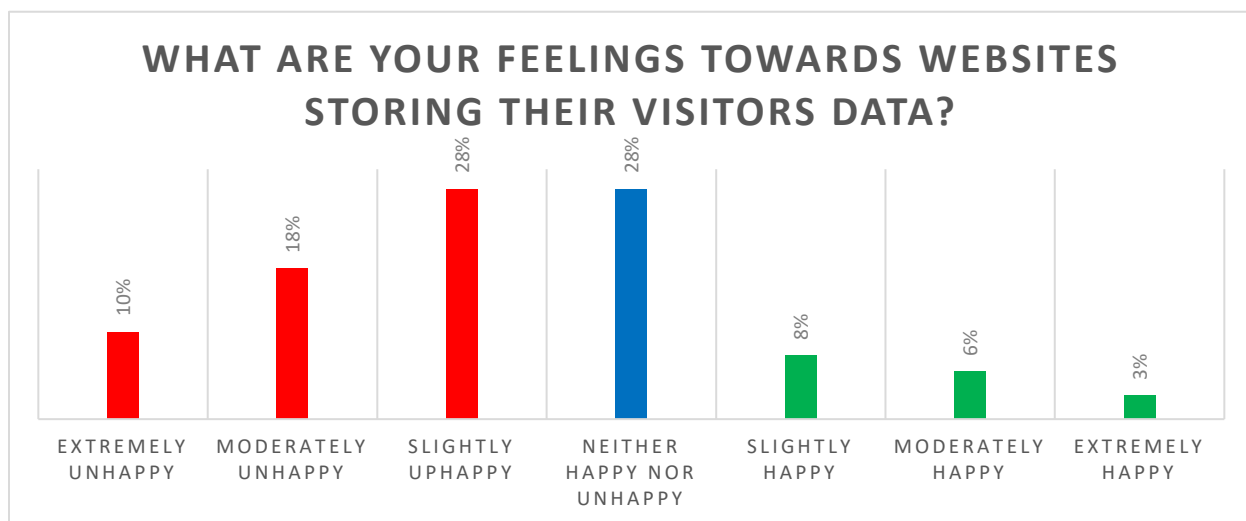
XI.   Positive online experiences and data sharing

IF I HAVE A POSITIVE EXPERIENCE WITH AN ONLINE SHOP, I AM MORE LIKELY TO GIVE THEM MY PERSONAL INFORMATION

DISAGREE	NEITHER AGREE NOR DISAGREE	AGREE
17%	8%	75%

XII.   Likeliness of conducting further research on these topics

I AM LIKELY TO RESEARCH MORE ABOUT THE TOPICS OF SEARCH PERSONALIZATION AND DATA PRIVACY MENTIONED TODAY.

EXTREMELY UNLIKELY	MODERATELY UNLIKELY	SLIGHTLY UNLIKELY	NEITHER LIKELY NOR UNLIKELY	SLIGHTLY LIKELY	MODERATELY LIKELY	EXTREMELY LIKELY
7%	10%	8%	19%	40%	11%	5%
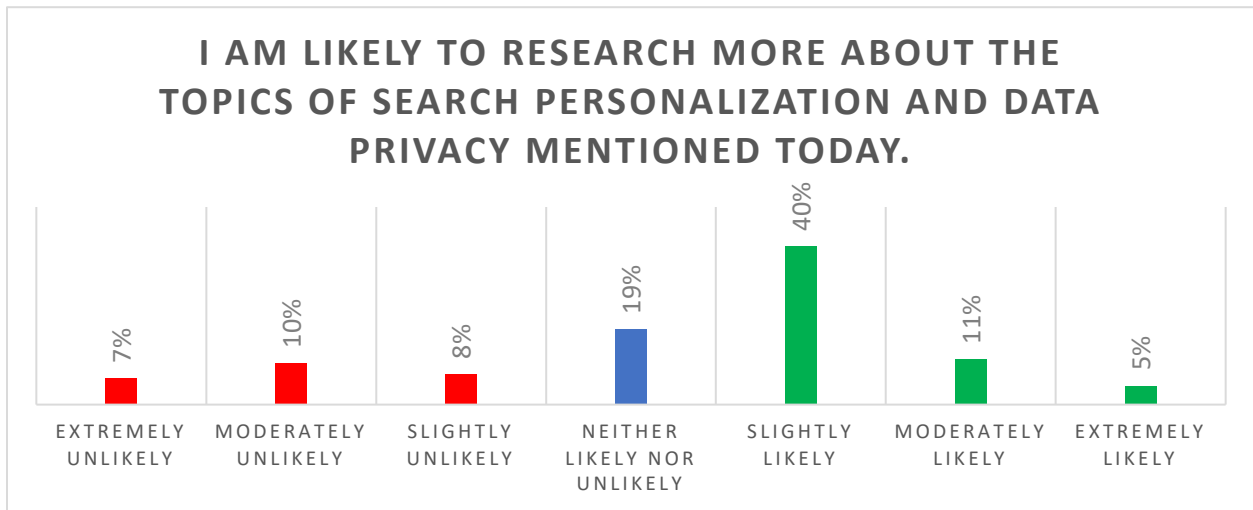
XIII.   Survey Questions

Honors Thesis- Jessica Taylor

Q1 You are invited to participate in a study of the Search Personalization's impact on Consumer Behavior. We hope to discover how personalized search, with both its positive and negatives impacts customer behavior.

If you decide to participate, you will be engaging with a brief 5-10 minute survey. The survey will discuss personalization and targeted advertisements.

Please note that as a potential participant you must be 18 years of age or older to take part in the study. You can refuse to participate without penalty or loss. Your participation is voluntary.

Any information collected in connection with this study will remain confidential and will not be shared in any capacity that can be traced to you.

You have the right to discontinue your participation at any time without penalty or loss. Closing the survey window will erase your answers without submitting them. You will be given a choice to submit your answers at the conclusion of the study.

If you have any questions please contact Jessica Taylor at (732) 890-4156 or jtaylor9@bryant.edu

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Q2 In consideration of all of the above, I give my consent to participate in this research study. I understand and agree with the statement to take part in this research project.

○ I agree (1)

○ I do not agree (2)

Q3 On average, how many online purchases do you make a month?

○ 0-5 (1)

○ 5-10 (2)

○ 15 or more (3)

○ I do not make online purchases (4)

Q4 What search engine do you most frequently use?

○ Google (1)

○ Bing (2)

○ Yahoo (3)

○ Baidu (4)

○ AOL (5)

○ DuckDuckGo (6)

○ Other (7) _____

Q5 Which products do you purchase most frequently online? Check all that apply.

☐ Clothing (1)

☐ Shoes (2)

☐ Books (3)

☐ Technology/ Electronics (laptops, phones, electronic cables etc...) (4)

☐ Jewelry (5)

☐ Home Decor (6)

☐ Personal Care (7)

☐ Music (CD's/ albums, records, etc...) (8)

☐ Groceries (9)

☐ Office Supplies (10)

☐ Toys & Games (11)

☐ Other (12) _____

Q7 When I am searching for a product online, I often have trouble finding what I am looking for because the website does not understand my search.

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)
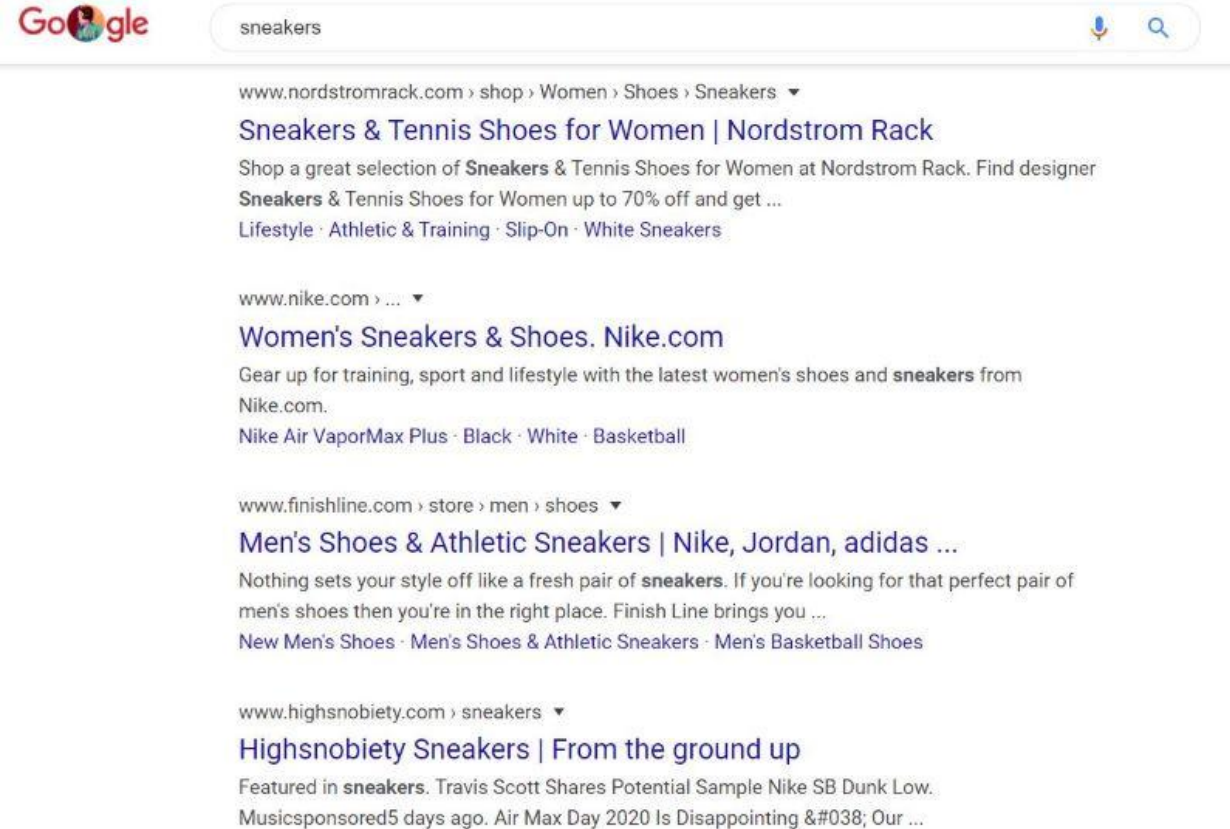
Q8 Assume you are interesting in purchasing a pair of sneakers. You open google and conduct a search. These are your results:

Q9

Google   sneakers

www.nordstromrack.com › shop › Women › Shoes › Sneakers ▾
Sneakers & Tennis Shoes for Women | Nordstrom Rack
Shop a great selection of **Sneakers** & Tennis Shoes for Women at Nordstrom Rack. Find designer **Sneakers** & Tennis Shoes for Women up to 70% off and get ...
Lifestyle · Athletic & Training · Slip-On · White Sneakers

www.nike.com › ... ▾
Women's Sneakers & Shoes. Nike.com
Gear up for training, sport and lifestyle with the latest women's shoes and **sneakers** from Nike.com.
Nike Air VaporMax Plus · Black · White · Basketball

www.finishline.com › store › men › shoes ▾
Men's Shoes & Athletic Sneakers | Nike, Jordan, adidas ...
Nothing sets your style off like a fresh pair of **sneakers**. If you're looking for that perfect pair of men's shoes then you're in the right place. Finish Line brings you ...
New Men's Shoes · Men's Shoes & Athletic Sneakers · Men's Basketball Shoes

www.highsnobiety.com › sneakers ▾
Highsnobiety Sneakers | From the ground up
Featured in **sneakers**. Travis Scott Shares Potential Sample Nike SB Dunk Low.
Musicsponsored5 days ago. Air Max Day 2020 Is Disappointing & Our ...

Q10 Are you likely to click on any of these brands?

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q11 Which brand are you more likely to engage with?

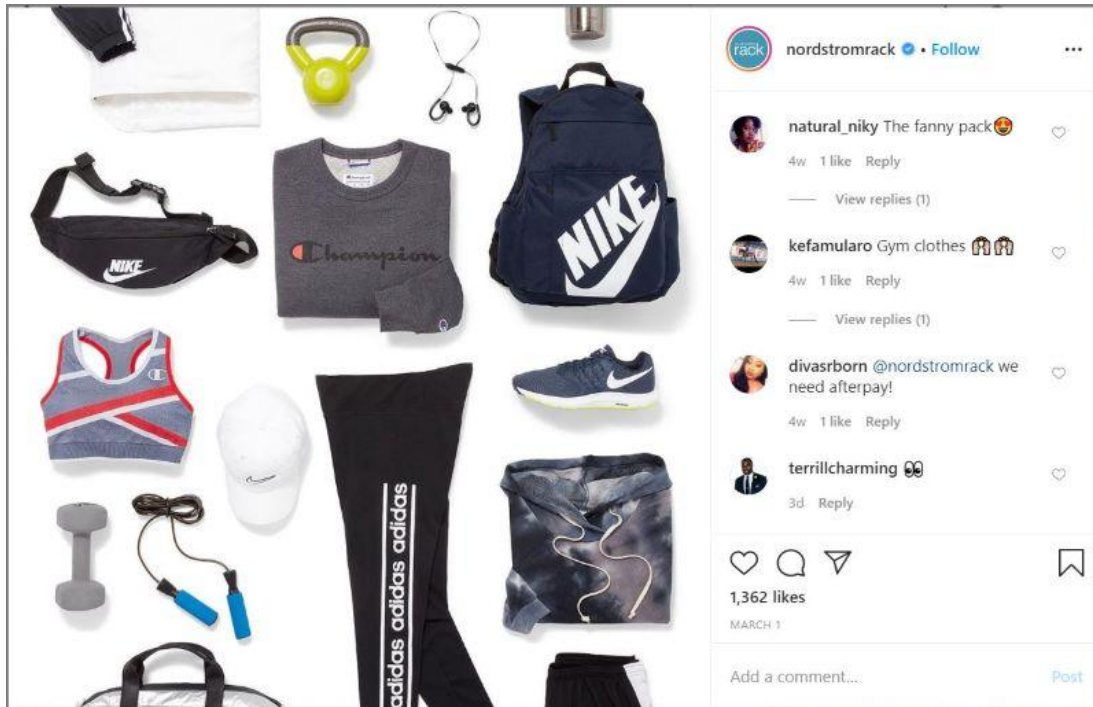○ Nordstrom Rack (1)

○ Nike (2)

○ Finish Line (3)

○ Highsnobiety (4)

Q12 After conducting your google search and opening a search result, you decide to open Instagram. You see the following advertisement.

- -

Display This Question:

    If Which brand are you more likely to engage with? = Nordstrom

Q13

Display This Question:

    If Which brand are you more likely to engage with? = Nike

Q14
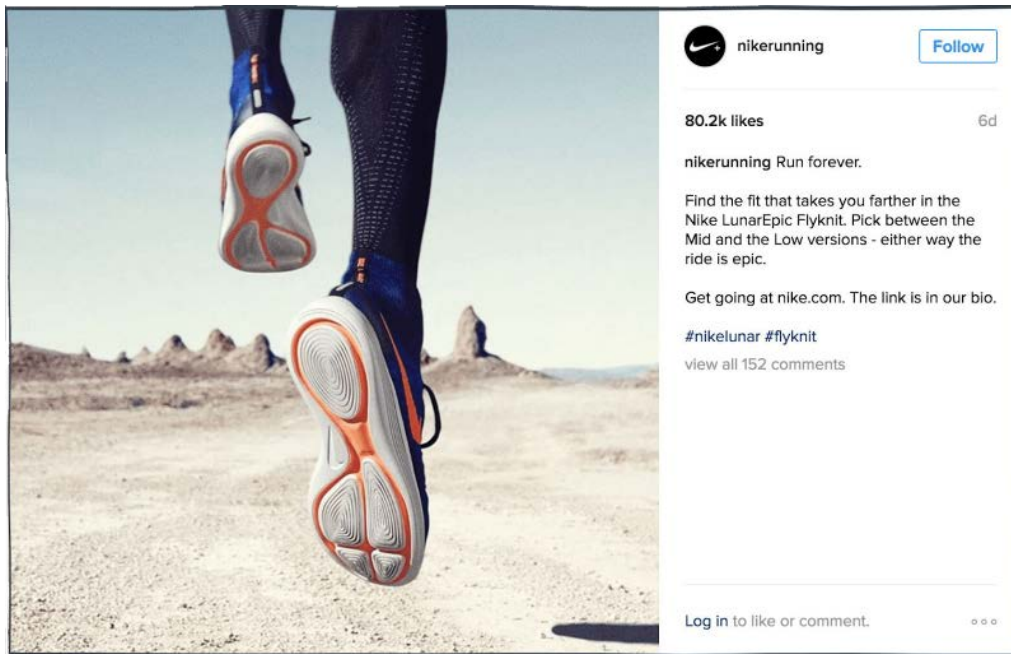
Display This Question:

    If Which brand are you more likely to engage with? = Finish Line

Q15

Display This Question:

If Which brand are you more likely to engage with? = Highsnobiety

Q16

Q17 What is your attitude towards the brand?

	1 (1)	2 (2)	3 (3)	
Unappealing	○	○	○	Appealing
Bad	○	○	○	Good
Unpleasant	○	○	○	Pleasant
Unfavorable	○	○	○	Favorable
Unlikeable	○	○	○	Likeable

Q18 What are your purchase intentions for the brand?

	1 (1)	2 (2)	3 (3)	
Never	○	○	○	Definitely
Definitely do not intend to buy	○	○	○	Definitely intend to buy
Very low purchase intent	○	○	○	Very high purchase intent
Definitely not buy	○	○	○	Definitely buy
Probably not buy it	○	○	○	Probably buy it

Q19 How many hours a day do you use your phone?

○ 0-1 hour (1)

○ 1-2 hours (2)

○ 2-6 hours (3)

○ 6-10 hours (4)

○ 10+ hours (5)

Q20 How many hours a day do you spend on social media applications? (ie. Instagram, Facebook, Pinterest, Snapchat, etc…)

○ 0-1 hour (1)

○ 1-2 hours (2)

○ 2-6 hours (3)

○ 6-10 hours (4)

○ 10+ hours (5)

Q21 Which social media platform do you use most frequently?

○ Facebook (1)

○ Instagram (2)

○ YouTube (3)

○ Pinterest (4)

○ Snapchat (5)

○ Tumblr (6)

○ Reddit (7)

○ TikTok (8)

Q22 I have experienced the following situations online.

	Strongly Disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Advertisements for recently visited websites (1)	○	○	○	○	○	○	○
Product recommendation based on purchase history (2)	○	○	○	○	○	○	○
Reminder email about items left in shopping cart (3)	○	○	○	○	○	○	○
Advertisement for recently discussed item (4)	○	○	○	○	○	○	○
Email with related coupon while at a store (5)	○	○	○	○	○	○	○

Q23 On what social media platform do you most frequently see personalized ads?

○ Facebook (1)

○ Instagram (2)

○ YouTube (3)

○ Pinterest (4)

○ Snapchat (5)

○ Tumblr (6)

○ Reddit (7)

○ TikTok (8)

Q24 Have you performed any of the online actions below? (check all that apply)

☐ Clicked through a brand/ company's sales email (1)

☐ Used a brand/ company's emailed coupons (2)

☐ Clicked on social media ads (3)

☐ Clicked on website ads (4)

☐ Purchased item left in shopping cart when sent reminder email (5)

Q25 I believe these advertising actions are acceptable.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
Product recommendation based on purchase history (1)	○	○	○	○	○	○	○
Birthday email from company (2)	○	○	○	○	○	○	○
Reminder email about item left in shopping cart (3)	○	○	○	○	○	○	○
Advertisement for recently visited website (4)	○	○	○	○	○	○	○
Email with a related coupon while at a store (5)	○	○	○	○	○	○	○
Advertisement for a recently discussed item (6)	○	○	○	○	○	○	○

Q26 I understand what search personalization is.

○ Strongly disagree (1)

○ Somewhat disagree (2)

○ Disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q27 Search personalization refers to web search experiences that are tailored specifically to an individual's interests by incorporating information about the individual beyond the specific search.

Q28 I believe that personalization impacts my purchase decisions as a consumer.

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q29 If I have a positive experience with an online shop, I am more likely to give them my personal information to stay updated via text messages or emails.

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q30 I am confident that my personal information is kept confidential when buying products online.

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q31 I am concerned about my privacy and personal data online.

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q32 Please rank your trust for the following Social Media Advertisements.

	Distrust (1)	Neither trust nor distrust (2)	Trust (3)
Pinterest (1)	○	○	○
Instagram (2)	○	○	○
YouTube (3)	○	○	○
Facebook (4)	○	○	○
Snapchat (5)	○	○	○
Tumblr (6)	○	○	○
Reddit (7)	○	○	○
TikTok (8)	○	○	○

Q33 I believe my phone/ laptop actively listens to my conversations to show me personalized ads.

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q34 I am aware of what electronic cookies are.

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q35 I frequently give websites access to my cookies.

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q36 I allow websites to access my cookies so the notification on the screen disappears.

○ Strongly disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q37 What are your feelings towards websites storing their visitors data?

○ Extremely unhappy (1)

○ Moderately unhappy (2)

○ Slightly unhappy (3)

○ Neither happy nor unhappy (4)

○ Slightly happy (5)

○ Moderately happy (6)

○ Extremely happy (7)

Q38 I am likely to research more about the topics of search personalization and data privacy mentioned today.

○ Extremely unlikely (1)

○ Moderately unlikely (2)

○ Slightly unlikely (3)

○ Neither likely nor unlikely (4)

○ Slightly likely (5)

○ Moderately likely (6)

○ Extremely likely (7)

Q39 With the ongoing Covid-19 pandemic, I am more likely than before to risk my data privacy in order to purchase necessary products and supplies online.

○ Strongly Disagree (1)

○ Disagree (2)

○ Somewhat disagree (3)

○ Neither agree nor disagree (4)

○ Somewhat agree (5)

○ Agree (6)

○ Strongly agree (7)

Q40 How old are you?

○ Under 18 (1)

○ 18 - 24 (2)

○ 25 - 34 (3)

○ 35 - 44 (4)

○ 45 - 54 (5)

○ 55 - 64 (6)

○ 65 - 74 (7)

○ 75 - 84 (8)

○ 85 or older (9)

Q41 What gender do you identify with?

○ Male (1)

○ Female (2)

○ Prefer not to answer (3)

Q51 Information about you

○ Your LAST name - as it appears on your birth certificate. (1)
_____

○ Your FIRST name - as it appears on your birth certificate. (4)
_____

○ Your Bryant ID number (5) _____

○ Your Bryant E-Mail address (6) _____

X→

Q53 Your Marketing instructor and section (click on the down arrow and select from the list)

▼

End of Questions

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