

Self-congruity, Preference, and Pathfinder: An Examination
of News Media Outlet Knowledge Structures

by

Jacob T. Willinger

A Thesis Presented in Partial Fulfillment
of the Requirements for the Degree
Master of Science

Approved April 2018 by the
Graduate Supervisory Committee:

Russel Branaghan, Chair
Scotty Craig
Robert Gray

ARIZONA STATE UNIVERSITY

May 2018

ABSTRACT

Using a modified news media brand personality scale developed by Kim, Baek, and Martin (2010), this study measured the personalities of eight news media outlets and combined them into the same associative network with participants' self-image via the Pathfinder tool (Schvaneveldt, Durso, & Dearholt, 1989). Using these networks, this study was able to both explore the personality associations of participants and observe if self-congruity, measured by the distance between the self-image node and a brand, is significantly related to participant preference for a brand. Self-congruity was found to be significantly related to preference. However, this relationship was mediated by participants' fiscal and social orientation. Overall, using Pathfinder to generate associative networks and measure self-congruity could be a useful approach for understanding how people perceive and relate to different news media outlets.

TABLE OF CONTENTS

	Page
LIST OF TABLES	iii
LIST OF FIGURES	iv
INTRODUCTION	1
Brand Personality	2
Self-congruity and Network Representations	4
Pathfinder	4
Present Study	5
METHOD	7
Instrumentation	7
Participants	7
Procedure	7
Developing Associative Networks	9
Identifying preference mediators	10
RESULTS	10
Goal 1: Explore and Examine Participant Networks	10
Goal 2: Self-Congruity and Preference	17
Goal 3: Mediating Factors	18
GENERAL DISCUSSION	20
REFERENCES	23
APPENDIX	
A SURVEY SCREENER	27
B NEWS MEDIA BRAND PERSONALITY RATING EXAMPLE	29
C SELF-RATING QUESTION	32
D PREFERENCE RATING	34
E DEMOGRAPHIC QUESTIONS	36

LIST OF TABLES

Table	Page
1. News Media Brand Personality	3
2. Mean Preference for News Media Outlets	17
3. Correlations Among Self-congruity and Demographics	18

LIST OF FIGURES

Figure	Page
1. Average Pathfinder Network of All 386 Participants for the Self-image, News Outlets, and Personality Traits. The Network Was Derived Using the Parameters of $r = \text{infinity}$ and $q=n-1$. These Parameters Provide the Sparsest Network Possible.....	11
2. Average Network for Fiscally and Socially Conservative Participants ($n=67$).....	13
3. Average Network for Fiscally and Socially Liberal Participants ($n=164$).....	14
4. Average Network for Fiscally and Socially Moderate Participants ($n=63$).....	16

Self-congruity, preference, and Pathfinder: An examination of news media outlet knowledge structures

The 2016 presidential election will likely stand out as one of the most surprising and bizarre situations in recent United States history, characterized by its notably contentious political climate and increased apprehension concerning the reliability of news media. This feeling culminated when then president-elect Donald Trump refused to answer a CNN reporter's question because the organization represented "fake news" ("Trump calls CNN", 2017). Indeed, the consequences of "fake news" are undoubtedly important, as research has already begun accumulating on the topic as the popularity of the buzzword increases (Allcott & Gentzgow, 2017; van der Linden, Leiserowitz, Rosenthal, & Maibach, 2017).

It is strange that a popular news outlet like CNN is being outright refused as fake by the President of the United States, especially considering that merely three years ago a study by the Pew Research Center rated it highest overall in percentage of respondents that trusted it (Mitchell, Gottfried, Kiley, & Matsa, 2014). Thus, it seems amongst the torrent of accusations and confusion, the American people's choice of a news media outlet may be as important as ever as they become increasingly concerned with perceived misinformation. Research on people's choice of media outlets shows that, as expected, people tend to choose news that reflects their views (Knobloch-Westerwick & Meng, 2009). Further, research shows that American's tend to choose political news that they think utilize expert sources, concise points, and in-depth reporting ("Audiences value trust", 2016). However, a dimension that has not often been examined in its relation to determining news media outlet preference is one that is typically thought to be reserved for conventional consumerism: brand personality.

Brand Personality

Brand personality has been studied extensively for years. Originally, brand personality theory was based on the conventional Big Five personality model: extroversion, agreeableness, conscientiousness, emotional stability, and openness (Caprara, Barbaranelli, & Guido, 2001). However, it was discovered that this model did not translate well to differing brands due to characteristics not accounted for in the conventional facets, such as gender, age, and class (Birdwell, 1968; Jacoby & Olson, 1985). Further, other measures of brand personality were developed specifically for certain brands and thus were not easily comparable or easy to validate. In light of this, Aaker (1997) developed a valid and generalizable scale which has since become the standard framework for brand personality. Brand personality is defined as “the set of human personality characteristics associated with a brand” (Aaker, 1997). The framework identifies five distinct dimensions: sincerity, excitement, competence, sophistication, and ruggedness. Defined within these five dimensions are fifteen facets that fully represent each dimension. Sincerity is defined by down to earth, honest, wholesome, and cheerful. Excitement is defined by daring, spirited, imaginative, and up to date. Competence is defined by reliable, intelligent, and successful. Sophistication is defined by upper class and charming. Finally, ruggedness is defined by outdoorsy and tough.

It may seem slightly counterintuitive to think of news media outlets as conventional brands since they are not usually marketed and advertised with other consumer products such as automobiles or soft drinks, but they are undoubtedly brands that are fighting for a competitive advantage over one another (Chan-Olmstead & Kim, 2001; Kotler, 1997). A news media brand can be defined as the names, terms, signs, and symbols that news outlets use to differentiate themselves from one another (Kotler, 1997). Research on news media brand personality has

been limited and the few studies that do exist have only focused on single outlets, such as cable broadcasts (Chan-Olmstead & Cha, 2007). In light of this, Kim, Baek, and Martin (2010) determined comprehensive dimensions of news media brand personality that were applicable to multiple news media outlets across both television and print news media. They developed this framework based on Aaker's (1997) traits as well as additional attributes of timeliness and competence identified by Chan-Olmsted and Cha (2008). The newly identified dimensions were trustworthiness, dynamism, sincerity, sophistication, and toughness. Akin to Aaker's framework, there were additional traits defined within each dimension (see Table 1).

Table 1

News media brand personality (Kim, Baek, & Martin, 2010)

<u>Trustworthiness</u>	<u>Dynamism</u>	<u>Sincerity</u>	<u>Sophistication</u>	<u>Toughness</u>
Smart	Trendy	Family-oriented	Glamorous	Tough
Professional	Lively	Friendly	Good looking	Rugged
Intelligent	Energetic	Sentimental	Charming	Masculine
Experienced	Edgy	Down-to-earth	Feminine	
Responsible	Exciting	Cheerful	Smooth	
Trustworthy	Daring	Sincere		
Educational	Contemporary			
Informative	Young			
Reliable	Spirited			
Analytical	Entertaining			
Serious	Dynamic			
Hard-working	Imaginative			
Straightforward	Unique			
Prestigious	Talkative			
Enlightening	Flashy			
Real	Sensational			
Honest				
Classy				

Self-congruity and Network Representations

An essential piece of the relationship between brand personality and news media outlet preference is self-congruity. Self-congruity refers to the relationship between people's self-image (simply, how people view themselves) and their mental representations of brand image (Dolich, 1969; Malhotra, 1981; Sirgy, 1982; Sirgy et al., 1997). The self-congruity theory asserts that congruity occurs when there is similarity between a product's image and someone's self-image. People want to act in a way that is consistent with who they think they are, including their choice of product (Sirgy, 1982; 1986). Indeed, previous research has found that people tend to prefer brands with images that are similar to their self-images (Dolich, 1969; Govers & Schoormans, 2005; Malhotra, 1988; Sirgy, 1982; Sirgy et al., 1997).

Equally important to the discussion are the network representations people have for both themselves and branding. There is strong evidence that memory is stored in the form of associative networks (Anderson, 1983; Anderson & Bower, 1973; Collins and Loftus, 1975; Meyer & Schvaneveldt, 1976). There is further evidence that both brand associations (Bettman, 1971; Henderson, Iacobucci, & Calder, 1998b; Krishnan, 1996) and self-image (Kihlstrom & Cantor, 1984; Kihlstrom & Klein, 1994) can be represented in these associative networks. Concepts are represented as nodes in these associative networks and connections between the concepts are represented as links. The more related concepts are to each other, the more likely they are to be linked directly (Collins & Loftus, 1975). These networks allow for the representation of both direct and indirect relationships between varying concepts (John, Loken, Kim, & Monga, 2006).

Pathfinder

A useful and valid quantitative tool for deriving associative network structures is the Pathfinder algorithm (Schvaneveldt, 1990; Schvaneveldt, Durso, & Dearholt,

1989). Pathfinder creates associative networks based on relatedness data using the same nodes and links concept described earlier. Highly-related nodes end up directly connected to one another, while less related concepts are connected by two or more links. Pathfinder includes a link if and only if the link is a shortest path. Then, the algorithm eliminates all spurious links, leaving a relatively clean network of connected nodes.

Multidimensional scaling (MDS) (Kruskal, 1964) is a traditional tool used for associative data in many fields, including branding (Henderson, Iacobucci, & Calder, 1998a) but can result in drastically different results than Pathfinder since it is a spatial dimensioning output instead of a network output. Pathfinder has the benefit of having explicating links that are easy to interpret and not bound by semantic dimensions (Chen & Paul, 2001). Further, Pathfinder has been shown to be useful for faster learning (Branaghan, 1990), education and training (Davis, Curtis, & Tschetter, 2003; Gammack, 1990; Goldsmith & Johnson, 1990; Goldsmith, Johnson, & Acton, 1991), and intelligent tutoring (Rowe, Cooke, Hall, & Halgreen, 1996). For these reasons, it has been suggested as a replacement for MDS for associative data analysis.

Present Study

The present study is heavily based on previous work by Hildebrand (2009) and Branaghan and Hildebrand (2011), which were the first to demonstrate the method of combining self-image and brand image into one network as well as the first to measure self-congruity via geodesic distance. However, these studies focused on automobile and soda brands and used Aaker's (1997) traditional scale. The present study seeks to accomplish three main goals: The first goal is exploratory. Since news media outlets have not been examined in this fashion before, this study

will examine the average self-congruity knowledge networks of the participants to establish a baseline understanding of the personality associations of outlets and their viewers. This will be insightful information that can help illuminate the personality type and preference of news outlet viewers.

The second goal is to examine if the concept of self-congruity and the brand personality inventory by Kim, Baek, & Martin (2010) can be used to help determine preference for a news media outlet. It will do so by combining self-image and brands into one associate network. The network will be derived by using the Pathfinder algorithm. Self-congruity will be measured as geodesic distance, which is the number of links between nodes. Based on the research from Hildebrand (2009) and Branaghan and Hildebrand (2011), in which self-congruity predicted consumer preference for automobiles and soft drinks, it is expected that self-congruity (as measured by geodesic distance) will be predictive of participant preference for news media outlets.

The final goal is to determine if the relationship between self-congruity and preference is mediated by participants' political orientation. Due to the moral and often passionate nature of politics, it seems that political affiliation could easily play a role as a determining factor for news media outlet choice. Indeed, this reflects research from Knobloch-Westerwick and Meng (2009). Thus, this study seeks to examine if self-congruity alone will determine media outlet preference or if political orientation will act as a mediating factor. It is predicted that political affiliation will be a mediating factor for outlet preference.

Method

Instrumentation

A website, Amazon Mechanical Turk (MTurk) was used to distribute the surveys. Participants were paid \$1.00 USD for completion of the survey. Participants were informed that the study seeks to better understand brand personality.

Participants

The survey was open to users on the MTurk site. Considering the MTurk population consists of users from 190 countries (Paolacci & Chandler, 2014), it was essential to limit the survey's availability to United States users only. This helped limit variability among the participant base, increased the chance the users would know English, and increased the potential for familiarity with the media outlets. A major criticism of Mturk is that there can be notable reduction in attentional effort from participants (Goodman, Cryder, & Cheema, 2013). Thus, in an effort to increase response quality, survey availability was also restricted to MTurk users who have completed at least 500 Mturk projects and have at least a 95% approval rating. These users tend to put forth effort and honesty when participating in MTurk projects. 386 total participants completed the survey. 223 participants were male (58%) and 163 were female (42%). Most participants were between 26 and 35 years old (45%). The second largest age group was 36 to 45 (25%). The remaining 30% was mostly evenly distributed between 18 to 25 (11%), 46 to 55 (10%), and 55+ (9%).

Procedure

The survey was opened in 44 batches of 9 over the course of one week. Approximately 6 batches were opened across each day in 2-hour periods. After a batch was complete, each response was checked for completeness and attentiveness. Only 5 participants were refused payment due to negligence.

The survey began with a screener to test participants' familiarity with the news media brands (Appendix A). If the participant answered "Not Familiar at All" to any of the news media brands, they were finished with the survey. This was an effort to ensure at least a baseline familiarity with the news media brand to help elicit more accurate responses. 141 total participants were screened out this way. The outlet chosen most often for "Not Familiar at All" was NPR (101 selections) while the outlets chosen the least often were Fox (11 selections) and CNN (9 selections). If participants did not select "Not Familiar at All" for any of the outlets, they were sent to an introductory page that gave an overview of the study as well as estimated completion time.

Participants first provided relatedness ratings of eight news media outlets on Kim, Baek, and Martin's (2010) personality traits using a traditional Disagree-Agree Likert scale (Appendix B). The news media brands used in the survey were selected based on a recent study from Gottfried, Barthel, and Mitchell (2017) which surveyed voters' primary news sources during the election season. The outlets are as follows: Fox News, CNN, Facebook, local TV, NBC, MSNBC, ABC, NPR, CBS, New York Times, and local newspapers. Since Facebook, local TV, and local newspapers are not identifiable news media outlets themselves, they were removed for this study, leaving eight outlets in total. The end spread of the outlets leans heavily left in the political spectrum but includes the most recognizable and popular right-wing source in Fox News (Blake, 2014; Gottfried, Barthel, & Mitchell 2017). In an effort to keep the study closer to the previous research (Branaghan & Hildebrand, 2011) and keep the survey manageable and understandable for participants, only the three most robust traits from each of Kim, Baek, and Martin's (2010) scale categories were used, which leaves the following fifteen traits for measure: smart, professional, intelligent, trendy, lively, energetic, family-oriented, friendly, sentimental,

glamorous, good looking, charming, tough, rugged, and masculine. Participants were also asked to rate each outlet for "Conservative" and "Liberal" using the same Likert scale.

Participants then rated their self-image across the same personality traits as the brands (Appendix C). After this, participants were asked which news media outlet they would choose to get news from (Appendix D). Both of these measures used the same Likert scale. Finally, participants were provided with a demographic questionnaire that collected information on age, gender, income (optional), fiscal political orientation, social political orientation, and political party affiliation (Appendix E). Completion of the survey took approximately 5 – 10 minutes.

Developing Associative Networks

Since the media outlets and self-image will be rated on the same scale, it allowed them to be combined into one associative network. To develop this network on Pathfinder, a matrix of inter-item proximities is required. Each participant had item pairs (news media outlet and self-image) derived by calculating the Euclidean distance between the trait rating vectors for each item with each other item. The resulting matrices were input into the Pathfinder algorithm (Interlink, 2009) using the parameters of $r = \text{infinity}$ and $q = n - 1$ to produce the sparsest and most easily-interpreted network (Branaghan & Hildebrand, 2011). This allowed Pathfinder to create individual networks for all 386 participants as well as averaged networks for all participants and different participant groups (e.g. fiscally conservative participants).

The self-image, each media outlet, and each personality trait are represented by nodes in the network. The distance between these nodes represents self-congruity. Self-congruity is measured by geodesic distance, which is simply the

number of links between nodes. For example, if there were three links between "Self" and "NPR" on a participant's network, the self-congruity measurement for that case would simply be 3. Media outlets and personality traits that are similar to the self-image are directly linked, while less-similar media outlets and traits will have two or more links between them and self-image. This measurement of geodesic distance from self to brand was correlated with preference ratings to determine if self-congruity is indicative of outlet preference (Branaghan & Hildebrand, 2011).

Identifying preference mediators

To determine if there were any mediating factors between self-congruity and preference, Spearman Rank correlations were computed to determine if there is any significant relationship between self-congruity and age, outlet familiarity, income, fiscal orientation, social orientation, and political party affiliation. Then, a Sobel test was conducted with the significant variables from the correlation analysis to finally determine if any variable significantly mediates the relationship between self-congruity and preference.

Results

Goal 1: Explore and Examine Participant Networks

The first goal of this study aimed to examine the different participant group networks and establish a baseline understanding of them. This required a demographic breakdown of participants. By political party affiliation, 192 participants identified as Democrat (49.7%), 86 identified as Republican (22.2%), 27 identified as Libertarian (7%), and 52 identified as independent (13.6%). The remaining 29 identified as Other (Green Party, Tea Party, Democratic Socialist, Socialist). By fiscal and social orientation, 67 participants identified as both fiscally and socially conservative (17.7%). 164 participants identified as both fiscally and socially liberal

(42.49%). 63 participants identified as both fiscally and socially moderate (16.32%). The other mixed groups (e.g. fiscally conservative, socially moderate) each represented smaller populations and had average networks that were chaotic and difficult to read. Thus, they were not analyzed as a part of this research goal.

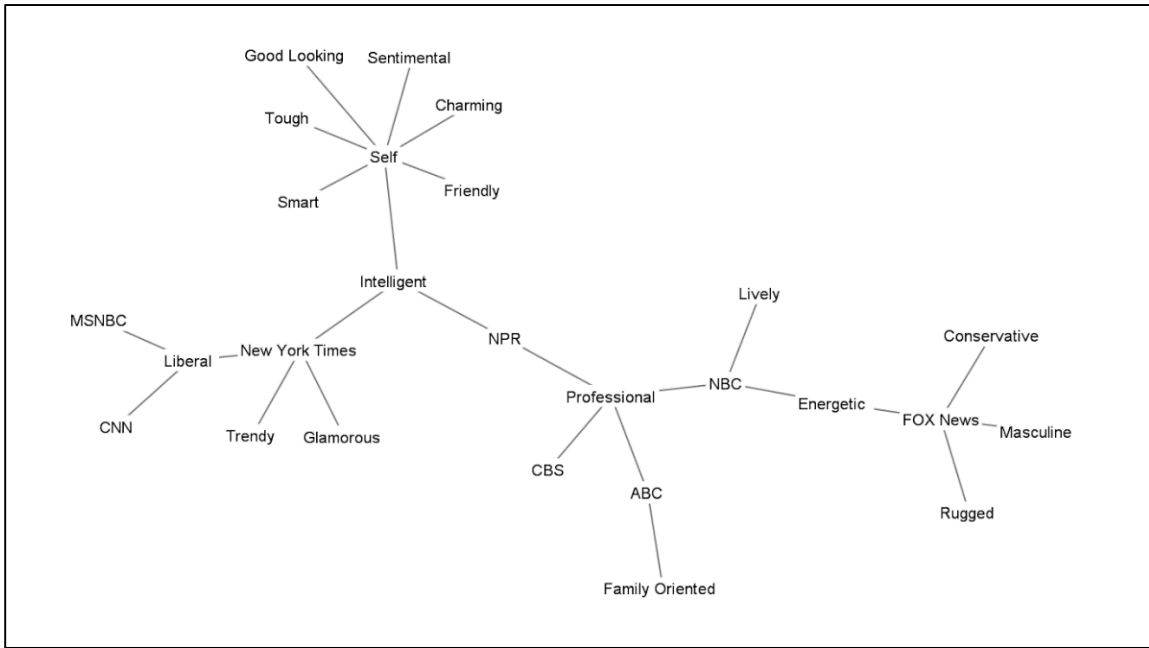


Figure 1: Average pathfinder network of all 386 participants for the self-image, news outlets, and personality traits. The network was derived using the parameters of $r = \text{infinity}$ and $q = n - 1$. These parameters provide the sparsest network possible.

Figure 1 shows the average network for all 386 participants. Since “Self” is much closer to “Liberal” (3 links) than “Conservative” (7 links), it is correctly indicative of the overall participant group’s left-leaning tendencies. A few trends immediately appear in this network. CNN, MSNBC, and New York Times, all outlets which are likely perceived as more liberal, are considered “Trendy” and “Glamorous”. This makes some sense with recent trends in the news. Specifically, CNN has been

the object of both presidential and right-wing attention. New York Times has also seemed to be more recently focused on with their President Trump-oriented opinion pieces. "Glamorous" is also certainly an interesting trait to find here but not altogether unexpected since liberalism is often associated as high-class and even snobbish. CBS, ABC, NPR, and NBC, all outlets which are likely to be perceived as more neutral, or at least less left-leaning, are considered "Family Oriented" and "Lively". "Family Oriented" seems so make sense here because a less-biased and less-extreme outlet might be the ideal choice for younger, easily-influenced people. Finally, FOX News, conventionally perceived as more conservative, is considered "Masculine", and "Rugged". Again, this is largely unsurprising. Right-wing outlooks tend to include more conventional gender norms and more focus on gun rights and military operations, both of which could be considered "Rugged". Participants tended to view themselves as "Smart", "Tough", "Good Looking", "Sentimental", "Charming", and "Friendly". Interestingly, no outlets are directly linked to "Self", which may indicate a weaker relationship between self-congruity and brand.

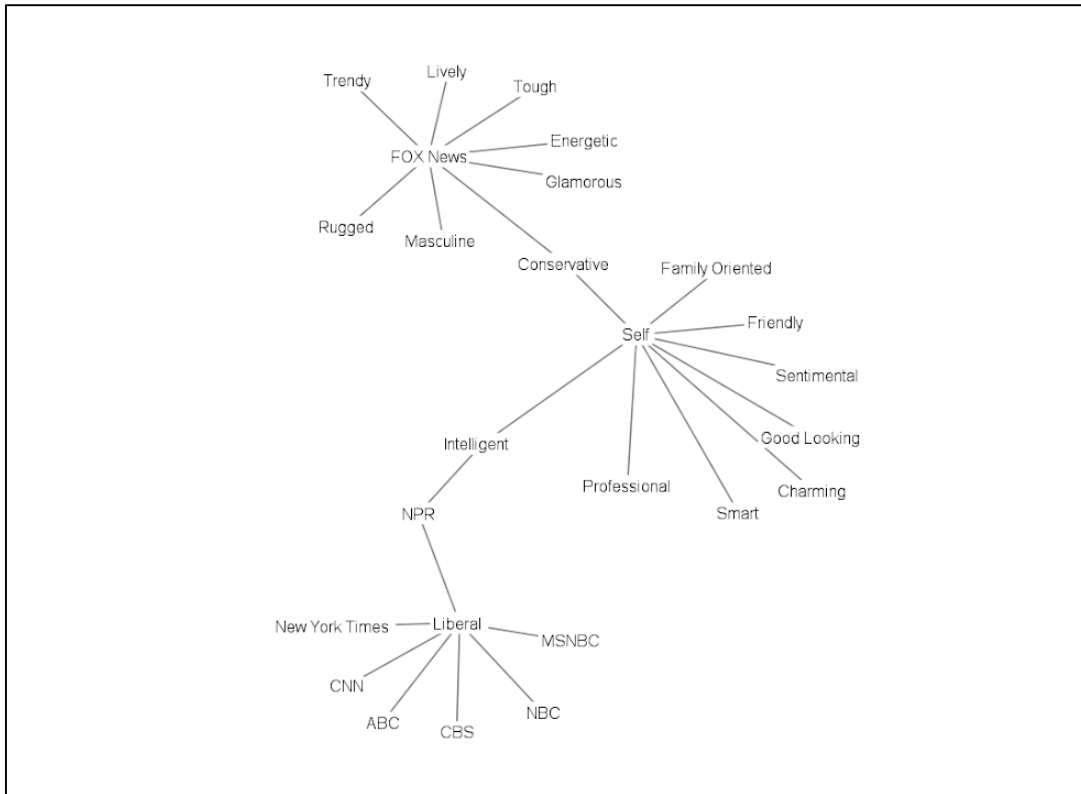


Figure 2: Average network of fiscally and socially conservative participants (n=67)

The next analyses focus on specific participant groups based on political orientation. Figure 2 shows the network for participants who identified as both fiscally and social conservative (n=67). It is immediately obvious that all of the left-leaning outlets were as far away from “Self” as possible (4 links) but “FOX News” is close (2 links). These participants tended to view themselves as “Professional”, “Smart”, “Charming”, “Good Looking”, “Sentimental”, “Friendly”, and “Family-Oriented”. Most of these match the “Self” traits from the “All” network, but both “Professional” and “Family-Oriented” are new. “Family-Oriented” is unsurprising as conservatives usually adhere to family values as a part of their beliefs. “FOX News” maintains the same links with “Rugged” and “Masculine” as it did in the “All” network. This suggests that both conservatives and non-conservatives identify “FOX

News” as “Rugged” and “Masculine”. However, “FOX News” also gains “Trendy” and “Glamorous”, which were attached to liberal outlets in the “All” network, as well as “Lively” and “Energetic”. This may suggest that these participants always see their preferred network as “Trendy” and thus always up-to-date. A final note is that none of left-leaning outlets have traits attached to them. Almost all traits are ascribed to either “Self” or “FOX News”. This could indicate that when responding, these participants rated left-leaning outlets significantly low on each personality trait.

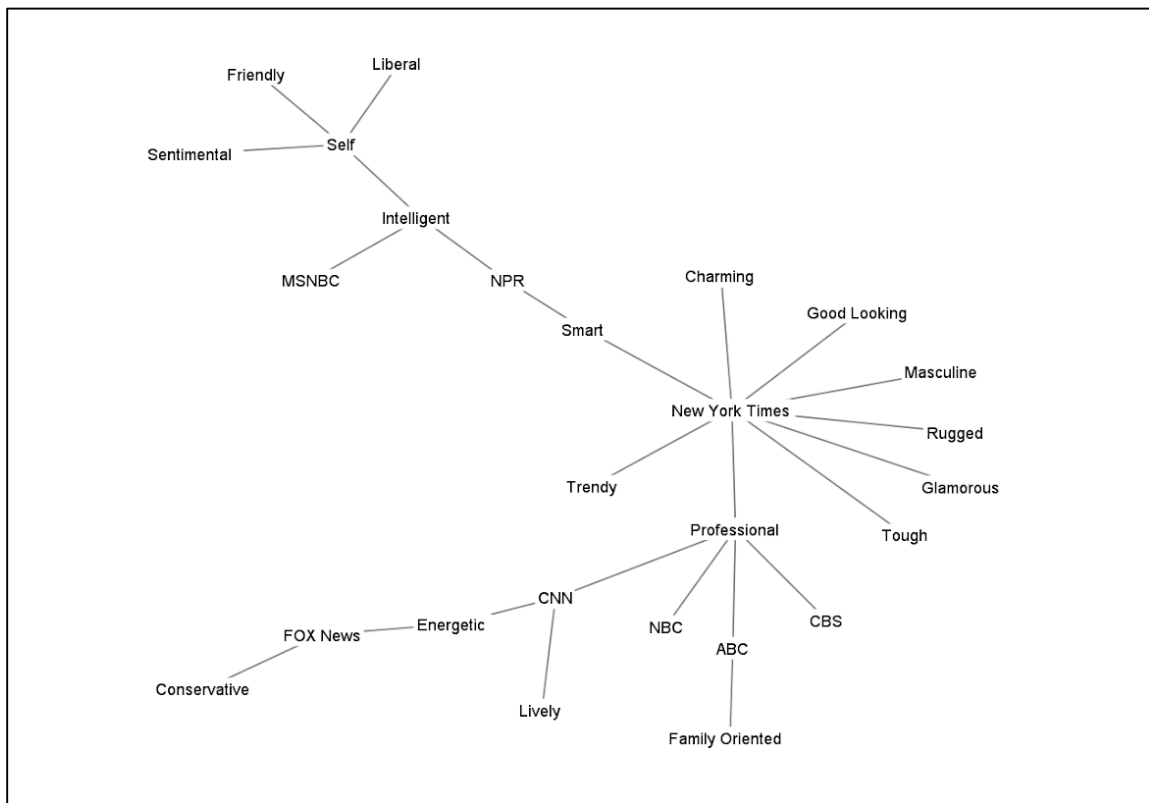


Figure 3: Average network for fiscally and social liberal participants (n=164)

Figure 3 shows the network for participants who identified as both fiscally and socially liberal (n=164). It is immediately obvious that “Self” is as far as possible from both “FOX News” and “Conservative”. “Self” is expectedly close to “MSNBC”, a

notably left-leaning outlet. An unexpected finding in this network, however, is that "CNN" is further away from "Self" than expected. This may be due to liberal-leaning people wanting to distance themselves from CNN given all of the recent criticism and attention. These participants tend to view themselves as "Sentimental" and "Friendly". Interestingly, more traits are associated to "New York Times" than "Self" or any other outlet. This is a difficult trend to suggest an explanation for other than that these participants likely rated the personality traits of "New York Times" higher than themselves. It is surprising that both "Masculine" and "Rugged", two traits associated with "FOX News" in both the "All" and "Conservative" networks, are associated with "New York Times" here. This suggests that, akin to the left-leaning outlets in the "Conservative" network, these participants rated outlets they did not prefer lower in all traits while they rated outlets they did prefer higher in all traits.

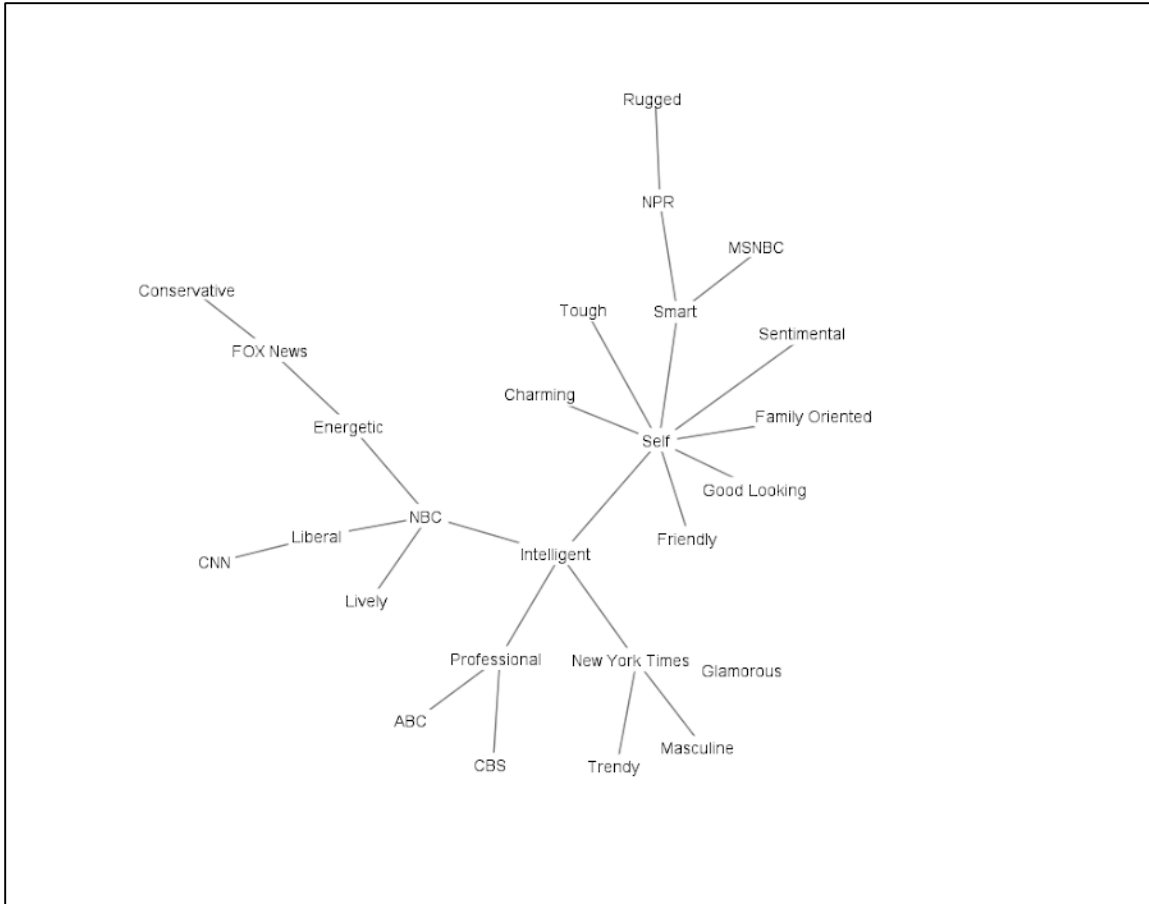


Figure 4: Average network for fiscally and socially moderate participants (n=63)

The final average network observed in this study is for participants who identified as both fiscally and socially moderate (n=63). "Self" is slightly closer to "Liberal" (4 links) than "Conservative" (5 links), indicating that these participants might still lean slightly left. This notion is also supported by "Self" being the same distance from "NPR" and "MSNBC" (2 links) as found in the "Liberal" network (see Figure 3). However, unlike the "Liberal" network, "Self" has way more traits associated into it, indicating participant reluctance to rate outlets higher in each trait. Unsurprisingly, both "CNN" and "FOX News" are 4 links away from "Self", suggesting

these participants try to distance themselves from outlets that are commonly perceived as more extreme and biased.

Overall, there were no major surprises in these participant networks considering they identified pretty closely with conventional political thoughts and assumptions. However, there were two interesting takeaways from the data as a whole. First, NPR was only 2 links away from “Self” in each network, suggesting that it is the most neutrally perceived of any of the outlets. Further, this may also suggest that, while certain orientations have obvious preferences for certain outlets, people may also appreciate neutrality in their outlet choices. Second, participants seemed to rate outlets that they didn’t prefer as much lower across all traits, even if the traits weren’t inherently positive (e.g. “Lively”, “Trendy”). This was most obviously the case with “FOX News” and “CNN”. All of this may suggest that people take a very black and white approach to any outlets that are disliked.

Goal 2: Self-Congruity and Preference

Table 2

<u>Mean preferences for news media outlets</u>	
<u>Outlet</u>	<u>Preference</u>
NBC	3.05
FOX News	2.42
MSNBC	2.81
ABC	2.95
NPR	3.26
CBS	2.99
New York Times	3.29
CNN	3.12

Table 2 shows the mean preferences ratings for news outlets. Participants preferred New York Times and NPR, the two items that are closest to “Self” in the “All” network (see Figure 1). This provides baseline evidence that self-congruity can

be represented as the number of links between nodes and hints that it can determine preference.

A Spearman correlation analysis was conducted between each participant's self-congruity rating and outlet preference. The two variables showed a weak, negative correlation, $r(3088) = -.23, p < .01$. This was the expected relationships between the two variables. The lower a participant's self-congruity score (that is, the closer they are to any one outlet in the network), the higher their preference for that outlet. However, the correlation strength here is notably weaker than those found in previous studies, who found moderate to strong correlations (Branaghan & Hildebrand, 2011; Hildebrand, 2009).

Overall, this suggests that measuring self-congruity by geodesic distance (number of links between nodes) between the self and outlets in the same network is valid in helping determine preference and could be predictive of preference as well. This is consistent with findings from previous studies (Branaghan & Hildebrand, 2011; Hildebrand, 2009). The third and final research goal will determine if there are mediating factors affecting this relationship.

Goal 3: Mediating factors

Table 3

Correlations among self-congruity and demographics

Variable	1	2	3	4	5	6	7
1. Self-congruity	-						
2. Familiarity	-.03	-					
3. Age	.02	.06**	-				
4. Income	-.02	.06**	.06**	-			
5. Fiscal Orientation	.05**	.01	.07**	.24**	-		
6. Social Orientation	.06**	-.01	.02	.14**	.75**	-	
7. Political Party	-.01	.02	.08**	.09**	-.25**	-.33**	-

Note: ** $p < .01$

A Spearman correlation analysis was conducted between the following demographic variables: self-congruity, outlet familiarity, age, income, fiscal orientation, social orientation, and political party affiliation (see Table 3). Only fiscal orientation, $r(3088) = .05, p < .01$, and social orientation, $r(3088) = .06, p < .01$, were significantly correlated to self-congruity. After this, two Sobel Tests were conducted. The first examined self-congruity as the independent variable, outlet preference as the dependent variable, and fiscal orientation as the mediator. Results showed a significant mediation effect from fiscal orientation, $Z = -3.31, p < .01$. The second test examined self-congruity as the independent variable, outlet preference as the dependent variable, and social orientation as the mediator. Results showed a significant mediation effect from social orientation, $Z = -3.88, p < .01$.

These results suggest that the relationship between self-congruity and preference is an indirect effect. Thus, outlet preference cannot be determined by self-congruity alone. If someone's self-congruity score is low (high self-congruity overall), then it is likely that person's preference score will be high, but only if they have a certain fiscal or social orientation score. Self-congruity is related to preference, but it can only have a relation with it by first impacting what someone's fiscal or social orientation is. However, the degree to which self-congruity is actually acting upon fiscal and social orientation to ultimately affect preference is difficult to determine and an odd relationship to analyze. It seems that political orientation would likely affect self-congruity, but not vice versa. Indeed, this is a limitation and an issue that would need to be addressed in future research.

Overall, the goal of this portion of the study was to determine if there were mediating factors between self-congruity and preference. Both fiscal and social orientation were significant mediating factors, suggesting that, as expected, political leanings play a notable role in determining outlet preference.

General Discussion

This study established a baseline understanding of the associations between consumers and news outlets as well as the personality traits that characterize each. This information could be useful to anyone interested in political assumptions of news consumers. Marketers from these outlets could use this information to help understand how their core consumers view them and how consumers with opposing political leanings view them. Further, they can use the information to observe the perceptions of their competitors and what resonates with certain consumer groups since they associate a brand with themselves. All of this can be useful when refocusing and directing future product development.

Second, this study followed-on research from previous studies (Branaghan & Hildebrand, 2011; Hildebrand, 2009) to continue to validate the method of combining the self-image and brands into one network and formulating self-congruity as geodesic distance between nodes. The present study successfully found self-congruity as valid in helping determine news outlet preference, which is consistent with the findings from previous studies (Branaghan & Hildebrand, 2011; Hildebrand, 2009) and continued to validate Pathfinder a method for accurately determining preference via self-congruity.

Finally, this study sought to examine if there were any factors, specifically political orientation, that mediated the relationship between self-congruity and preference. Both fiscal and social orientation were successfully identified as mediators. This is important to keep in mind when examining news media outlets via self-congruity in the future since self-congruity alone does not determine preference above and beyond political orientation.

Although this study closely mirrored previous research (Branaghan & Hildebrand, 2011; Hildebrand, 2009), it took a few new steps with its direction. First,

it was the first to extend the method to a new product category, news media outlets. Studies thus far have only focused on automobile brands and soda brands. Second, it was the first to use a new personality scale. Previous studies used Aaker's (1997) conventional brand personality scale. The present study used a modified version of the news media brand personality scale from Kim, Baek, and Martin (2010) and validated it. This will be useful for future work with Pathfinder and news media outlets. Future work should consider using the full scale or a variant of the full scale since it offers additional dynamic via different traits. Finally, this study was first to examine mediators between self-congruity and preference. This was not necessary in previous studies where there was no major concern over mediation. It should be noted, however, that the previous studies examined four dimensions of self-image (self-image, ideal self-image, social image, ideal social image), whereas the present study only examined self-image. Thus, the studies have examined the influences on preference in different ways.

The last point brings notable considerations and concerns to the present study. Since previous research focused on conventional products (automobiles, soda), there were no concerns over the implications of political orientation. With the present study, political association brings a vastly deep set of associations and implications since it is concerned with values and morality. Further, political association tends to beget great fervor in people about choice and preference whereas this is rarely the case with conventional products; there are more emotional and serious factors involved with choice of news media outlet versus choice of soda. Indeed, it may be the case that political orientation is more deeply associated with self-image than originally anticipated. Future research on this topic should more closely investigate how closely one's self-image is associated with or dictated by

political orientation. Additionally, future research should examine how people access their news outlets (TV, newspaper, social media, etc.).

Research with Pathfinder as a predictive tool is still relatively young, so future work should continue to validate it as a method with a wider range of product categories. Although geodesic distance has been shown in previous research to be the best indicator of preference (Hildebrand, 2009), there are other structures, such as threshold networks, and other tools, such as multidimensional scaling (MDS), that should continue to be used and observed to determine which method is best for visualizing and helping determine consumer preferences.

References

- Aaker, J. L. (1997). Dimensions of Brand Personality. *Journal of Marketing Research*, 34(3), 347-356.
- Allcott, H., & Gentzgow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives*, 31(2), 211-236. doi:10.1257/jep.31.2.211
- Audiences value trust components differently depending on the news source and topic (2016, April 17). Retrieved from <http://www.americanpressinstitute.org/publications/reports/survey-research/news-trust-source-topic/#fnref-7491-4>
- Anderson, J. R. (1983). *The Architecture of Cognition*. Cambridge, MA: Harvard University Press.
- Anderson, J.R., & Bower, G. H. (1973). *Human Associative Memory*. Washington, DC: V. H. Winston.
- Bettman, J. R. (1971). A graph theory approach to comparing consumer information processing models. *Management Science*, 18(4), 114-128.
- Birdwell, A. E. (1968). A study of the influence of image congruence on consumer choice. *The Journal of Business*, 41(1), 76-88.
- Blake, A. (2014, October). Ranking the media from liberal to conservative, based on their audiences. *The Washington Post*. Retrieved from https://www.washingtonpost.com/news/the-fix/wp/2014/10/21/lets-rank-the-media-from-liberal-to-conservative-based-on-their-audiences/?utm_term=.f90efa0f9f95
- Branaghan, R. J. (1990). Pathfinder networks and multidimensional spaces: Relative strengths in representing strong associates. In R.W. Schvaneveldt (Ed.), *Pathfinder Associative Networks: Studies in Knowledge Organization* (pp. 111-120). Norwood, NJ: Ablex.
- Branaghan, R. J., & Hildebrand, E. A. (2011). Brand personality, self-congruity, and preference: A knowledge structures approach. *Journal of Consumer Behavior*, 10(5), 304-312. doi: 10.1002/ch.365
- Caprara, G.V., Barbaranelli, C., & Guido, G. (2001). Brand personality: How to make the metaphor fit? *Journal of Economic Psychology*, 22(3), 377-395.
- Chan-Olmsted, S. M., & Cha, J. (2007). Branding television news in a multichannel environment: An exploratory study of network news brand personality. *The International Journal on Media Management* 9(4), 135-150.
- Chan-Olmsted, S. M., & Cha, J. (2008). Exploring the antecedents and effects of brand images for television news: An application of brand personality construct in a multichannel news environment. *The International Journal on Media Management*, 10(1), 32-45.

- Chan-Olmsted, S. M., & Kim, Y. (2001). Perceptions of branding among television station managers. An exploratory analysis. *Journal of Broadcasting & Electronic Media*, 45(1), 75-91.
- Chen, C., & Paul, R. J. (2001). Visualizing a knowledge domain's intellectual structure. *Computer*, 34(3), 65-71.
- Collins, A. M., & Loftus, E. F. (1975). A spreading-activation theory of semantic processing. *Psychological Review*, 82(6), 407-428.
- Davis, M. A., Curtis, M. B., & Tschetter, J. D. (2003). Evaluating cognitive training outcomes: Validity and utility of structural knowledge assessment. *Journal of Business and Psychology*, 18(2), 191-206.
- Dolich, I. J. (1969). Congruence relationships between self images and product brands. *Journal of Marketing Research*, 6(1), 80-84.
- Gammack, J.G. (1990). Expert conceptual structure: The stability of pathfinder representations. In R.W. Schvanaveldt (Ed.), *Pathfinder Associative Networks: Studies in Knowledge Organization* (pp. 111-120). Norwood, NJ: Ablex.
- Goldsmith, T. E., & Johnson, P. J. (1990). A structural assessment of classroom learning. In R.W. Schvanaveldt (Ed.), *Pathfinder Associative Networks: Studies in Knowledge Organization* (pp. 111-120). Norwood, NJ: Ablex.
- Goldsmith, T. E., Johnson, P. J., & Acton, W.H. (1991). Assessing structural knowledge. *Journal of Educational Psychology*, 83(1), 88-96.
- Goodman, J. K., Cryder, C. E., & Cheema, A. (2013). Data collection in a flat world: The strengths and weaknesses of mechanical turk samples. *Journal of Behavioral Decision Making*, 26(3), 213-224.
- Gottfried, J., Barthel, M., & Mitchell, A. (2017, January 18). Trump, Clinton voters divided in their main source for election news. *Pew Research Center*. Retrieved from <http://www.journalism.org/2017/01/18/trump-clinton-voters-divided-in-their-main-source-for-election-news/>
- Govers, P. C., & Schoormans, J. P. (2005). Product personality and its influence on consumer preference. *Journal of Consumer Marketing*, 22(4), 189-197.
- Henderson, G. R., Iacobucci, D., & Calder, B. J. (1998a). *Brand Constructs: The Complementarity of Consumer Associative Networks and Multi-dimensional Scaling*. Cambridge, MA: Marketing Science Institute.
- Henderson, G. R., Iacobucci, D., & Calder, B. J. (1998b). Brand diagnostics: Mapping branding effects using consumer associative networks. *European Journal of Operational Research*, 111(2), 306-327.

- Hildebrand, E. A. (2009). *Examining associative networks in relation to self congruity and brand personality* (Unpublished doctoral dissertation). Arizona State University, Mesa, AZ.
- Interlink Inc. (2009). Pathfinder networks. Retrieved from <http://interlinkinc.net/>
- Jacoby, J., & Olson, J. C. (1985). *Perceived quality*. Lexington, MA: Lexington Books.
- John, D. R., Loken, B., Kim, K., & Monga, A. B. (2006). Brand concept maps: A methodology for identifying brand association networks. *Journal of Marketing Research*, 43(4), 549-563.
- Kihlstrom, J.F., & Cantor, N. (1984). Mental representations of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 15, pp. 1-47). New York: Academic Press.
- Kihlstrom, J. F., & Klein, S. B. (1994). The self as a knowledge structure. In R.S. Wyer & T.K. Srull (Eds.), *Handbook of social cognition* (2nd ed., Vol. 1, pp. 153-208). Hillsdale, NJ: Erlbaum.
- Kim, J., Baek, T. H., & Martin, H. J. (2010). Dimensions of news media brand personality. *Journalism & Mass Communication Quarterly*, 87(1), 117-134.
- Knobloch-Westerwick, S., & Meng, J. (2009). Looking the other way: Selective exposure to attitude-consistent and counterattitudinal political information. *Communication Research*, 36(3), 426-448. doi: 10.1177/0093650209333030
- Kotler, P. (1997). *Marketing management: Analysis, planning, implementation, and control*. Upper Saddle River, NJ: Prentice Hall.
- Krishnan, H. S. (1996). Characteristics of memory associations: A consumer-based brand equity perspective. *International Journal of research in Marketing*, 13(4), 389-405.
- Kruskal, J. B. (1964). Multidimensional scaling by optimizing goodness of fit to a nonmetric hypothesis. *Psychometrika*, 29, 1-27.
- Malhotra, N. K. (1981). A scale to measure self-concepts, person concepts, and product concepts. *Journal of Marketing Research*, 18(4), 456-464.
- Malhotra, N. K. (1988). Self concept and product choice: An integrated perspective. *Journal of Economic Psychology*, 9(1), 1-28.
- Meyer, D.E., & Schvaneveldt, R.W. (1976). Meaning, memory structure and mental processes. *Science*, 192, 27-33.
- Mitchell, A., Gottfried, J., Kiley, J., & Matsa, K. E. (2014, October 21). Political polarization & media habits. *Pew Research Center*. Retrieved from <http://www.journalism.org/2014/10/21/political-polarization-media-habits/>

- Paolacci, G., & Chandler, J. (2014). Inside the turk: Understanding mechanical turk as a participant pool. *Current Directions in Psychological Science, 23*(3), 184-188.
- Rowe, A. L., Cooke N. J., Hall, E. P., & Halgreen, T.L. (1996). Toward an on-line knowledge assessment methodology: Building on the relationship between knowing and doing. *Journal of Experimental Psychology: Applied, 2*(1), 31.
- Schvaneveldt, R. W. (1990). *Pathfinder associative networks: Studies in knowledge organization*. Westport, CT: Ablex Publishing.
- Schvaneveldt, R. W., Durso, F. T., & Dearholt, D. W. (1989). Network structures in proximity data. In *Psychology of learning and motivation* (Vol. 24, pp. 249-284). New York: Academic Press.
- Sirgy, M. J. (1982). Self-concept in consumer behavior: A critical review. *Journal of Consumer Research, 9*(3), 287-300.
- Sirgy, M. J. (1986). *Self-congruity: Toward a theory of personality and cybernetics*. New York: Praeger.
- Sirgy, M. J., Grewal, D., Mangleburg, T. F., Park, J., Chon, K. S., Claiborne, C. B., Johar, J. S., & Berkman, H. (1997). Assessing the predictive validity of two methods of measuring self-image congruence. *Journal of the Academy of Marketing Science, 25*(3), 229-241.
- Trump calls CNN 'fake news' [video file]. (2017). Retrieved from <https://www.nytimes.com/video/us/politics/100000004865825/trump-calls-cnn-fake-news.html>
- van der Linden, S., Leiserowitz, A., Rosenthal, S., & Maibach, E. (2017). Inoculating the public against misinformation about climate change. *Global Challenges, 1*(2). doi: 10.1002/gch2.201600008

APPENDIX A
SURVEY SCREENER

Rate how familiar you are with the following news media outlets with respect to their political leanings:

	Not familiar at all	Slightly familiar	Moderately familiar	Very familiar	Extremely familiar
NBC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fox News	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MSNBC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ABC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NPR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CBS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
New York Times	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CNN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX B

NEWS MEDIA BRAND PERSONALITY RATING EXAMPLE

Part 1: News Media Brand Personality Rankings

This part of the survey asks you to rate 8 different news media brands on 17 personality characteristics.

As you go through the following pages, please think of the brands as if they were people. This may seem strange, but consider the human-like descriptors that brands possess. For example, consider soda brands. Pepsi may be professional and honest, whereas Mountain Dew might be tough, rugged, and masculine.

Please rate your level of agreement with the following statement.

NBC is:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Smart	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intelligent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trendy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energetic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family-oriented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sentimental	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Glamorous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Good looking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Charming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rugged	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Masculine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conservative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liberal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX C
SELF-RATING QUESTION

This part asks questions about you. Please answer them as honestly as possible.

Please rate your level of agreement with the following statement.

I see myself as:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Smart	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Intelligent	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trendy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energetic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family-oriented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Friendly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sentimental	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Glamorous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Good looking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Charming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rugged	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Masculine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conservative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Liberal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX D
PREFERENCE RATING

Rate your level of agreement with the following statement.

If I were to get news from a news media outlet today, I would get it from:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
NBC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fox News	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MSNBC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ABC	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NPR	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CBS	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
New York Times	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CNN	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX E
DEMOGRAPHIC QUESTIONS

Gender:

Male

Female

Other

Age:

18-25

26-35

36-45

46-55

> 55

What is your average yearly income? (optional)

< \$20,000

\$20,000 - \$40,000

\$40,000 - \$60,000

\$60,000 - \$80,000

\$80,000 - \$100,000

> \$100,000

What is your *fiscal* political orientation?

Very liberal

Liberal

Moderate

Conservative

Very
conservative

What is your *social* political orientation?

Very liberal

Liberal

Moderate

Conservative

Very
conservative

What political party are you affiliated with?

Republican

Democrat

Libertarian

Other (please specify)

None