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Comparing Disaster News on Twitter and Television: an Intermedia Agenda Setting Perspective

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Intermedia agenda setting predicts a high degree of convergence between news media agendas. However, the rise of social media forces a re-examination of this expectation. Using the 8.8-earthquake of February 27, 2010 in Chile as a case study, this article compares which topics were covered by professional journalists on broadcast news and Twitter, analyzing both cross-sectional and longitudinal trends. A positive, reinforcing influence was found among the journalistic agendas of TV and Twitter. However, counter to the idea that social media are echo chambers of traditional media, it was found that Twitter influences TV news more so than the other way around. Thus, the study provides an early lens into the agenda setting function of social media among television news professionals, and its findings are consistent with Twitter succeeding among journalists due to its provision of valuable information.

In less than a decade, Twitter has become an important tool for journalists around the world. Surveys show that a majority of news professionals now employ Twitter on a daily basis, although mostly to consume—not to produce—information (Cision, 2015; Gulyas, 2013; Hedman & Djerf-Pierre, 2013). The popularity of Twitter for journalism has spawned a growing literature on how journalists use the platform and its impact on professional norms and routines (e.g., Broersma & Graham, 2013;

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Bruns, 2012; Hermida, 2010; Lasorsa, Lewis, & Holton, 2012; Moon & Hadley, 2014; Paz García & Spinosa, 2014). At the same time, there is a vast and growing literature on how “the people formerly known as the audience” (Rosen, 2006) are using Twitter as a source for news and conversation with journalists (e.g., Bode, 2016; Xu & Feng, 2014; Yoo & Gil de Zúñiga, 2014). This research shows that a major driver of Twitter use is information acquisition. For instance, a 2015 survey found that 17% of adults in the United States use Twitter, of which 63% get news or news headlines on it (Barthel, Shearer, Gottfried, & Mitchell, 2015). Thus, it is clear that Twitter has become an important topic for scholarly research, both from the perspective of journalists and users in general.

As is common with the study of new technologies, most published research takes a platform-centric perspective, in which the impact of Twitter on journalistic practice and news coverage is studied in isolation from other media. When professional journalists are the subjects under study, either content analyses of what these journalists post on Twitter or social network analyses of their Twitter behavior are conducted, which creates a problem of studying a self-selected population only (Hermida, 2013). Few authors have compared what news professionals do on Twitter vis-à-vis other media, such as broadcast and online news (Groshek & Groshek, 2013). Relatedly, few studies describe the role played by Twitter in news coverage from a dynamic perspective, that is, there is a preference for producing descriptions and testing propositions without examining how relationships evolve over time. And while some research delves into the role of Twitter in specific areas of journalism, such as politics (Burgess & Bruns, 2012), revolutions (Hermida, Lewis, & Zamith, 2014), health (Kim, 2015), and sports (Schultz & Sheffer, 2010), most literature focuses on news in general. This is problematic as it assumes that all journalistic beats are equally influenced by Twitter.

The purpose of this article is to fill in some of these gaps. It does so by producing a comparison of how journalists cover disaster news on Twitter and broadcast television using intermedia agenda setting as a theoretical framework (McCombs, 2014; Meraz, 2011). We focus on broadcast television for two reasons: it is the most important news source for publics worldwide (World Values Survey, 2015) and—among traditional media—has been found to be most compatible with Twitter use (Dredge, 2014; Gil de Zúñiga, Garcia-Perdomo, & McGregor, 2015). Based on data from a content analysis of professional journalists’ tweets and TV news stories, analyzed using both a cross-sectional and longitudinal design, we track similarities and differences in the way each platform was used to cover the 8.8 earthquake and tsunami that struck Chile on February 27, 2010 (27F herein) —the biggest catastrophe in this South American country since 1985. We focus on 27F because one topic for which the importance of Twitter for journalists and audiences is highly valued is coverage of disasters and large-scale emergencies (Houston, Pfefferbaum, & Rosenholtz, 2012; Murthy & Longwell, 2013). Ultimately, this article seeks to contribute to comparative analyses of inter-media influences between traditional and social media and gauge the level of information complementarity, at times of disasters, between news on television and Twitter.

Literature Review

Journalism in Times of Disasters

Large magnitude disasters, such as the 2004 tsunami in the coasts of the Indian Ocean, the 2005 Hurricane Katrina, and the damaging earthquakes in Haiti in 2010 and Japan in 2011, to name a few, cause great losses for society in terms of human lives, infrastructure and economy (Altay & Green, 2006). In addition, these are the most painful and scary events a collective can endure (Birkland, 1997). These tragedies have a cycle, from the mental health perspective as well as from the disaster management perspective, which starts from the moment prior to the event, the impact, the 72 hours following the disruption—when the media produce the greatest news coverage, known as the response phase—the recovery and normalization phases. In the mental health and trauma literature, the nomenclature for these phases is: pre-disaster, impact, heroic, honeymoon, disillusionment, and reconstruction (Centers for Disease Control and Prevention, 2015). From the disaster risk management perspective, these phases are somewhat different. There is a normal period of mitigation, prevention, and preparedness, an emergency response period following the occurrence of the disaster or major hazard, and a recovery period (Baas, Ramasamy, Dey De Pryck, & Battista, 2008). During the immediate emergency response phase, journalists are usually among the first responders (Bednarski, 2007) and, therefore, first-line witnesses of the actions of the people in charge of the response and recovery phases of the disaster.

At the disaster site there is a vulnerable and traumatized population, so much so that many affected people can suffer from post-traumatic stress for long periods (Nolen-Hoeksema & Morrow, 1991). For the community, then, journalists may provide support to overcome the situation and get back to normal (Lowrey et al., 2007). It might be a job for which they are not always prepared, either because citizens demand actions from them other than the professional ones or because their knowledge about disasters and an efficient response in emergency management is insufficient (Puente, Pellegrini, & Grassau, 2013a, 2013b). It is under these conditions that journalists and the media set the news agenda of a disaster, providing the greatest amount of information during the first days because “a disaster is the kind of breaking news story that merits extensive coverage” (Potter & Ricchiardi, 2009, p. 8).

The first days following a disaster are the most challenging for both reporters and emergency personnel, for they must set in motion their emergency plans and face a population that feels threatened and fragile. Audiences turn to media, especially television, and an “information marathon,” of 24/7-news coverage begins. As stated by Blondheim and Liebes (2003), disasters are paradigmatic moments, appropriate for this type of programming because the strength of the event has the capacity to show the relevance of what has occurred through images and the time they remain on screen. That is, because of its characteristics, television plays an important role in delivering information at times of disaster.

Twitter Use During Disasters

With the arrival of the internet and the explosion of social media the traditional ways of facing an audience at times of disaster have been transformed. Specifically, there have been changes in terms of what would be the relationship between journalists and the audience, the manner of communicating, the speed in delivering information, and the ways of compiling data (Hermida, 2013; Lasorsa et al., 2012). For journalists, Twitter has become a supportive resource for reporting and delivering information. A 2014 survey of a representative sample of Chilean journalists revealed that 71% frequently and/or always used social media such as Twitter to search for information sources, 53% use it for promoting their own news stories, and 41% use it for interpreting and giving context to news events (Valenzuela & Halpern, 2015). The same survey revealed that, of a list of possible topics in the news, social media were valued most for the coverage of natural disasters and major emergencies.

In the case of the general population, several studies have documented the ways in which users rely on Twitter for managing a disaster situation (Binder, 2012; Houston et al., 2015; Takahashi, Tandoc, & Carmichael, 2015). In the 2008 earthquake in Sichuan, China, residents were the first to send information on what was happening there through Twitter (Hermida, 2010). The same happened in Haiti for the 2010 earthquake: journalists arriving on site obtained their first briefing from information provided via Twitter. At the same time, they used this medium to send information, data, and images. In this context, Chile had a similar experience during the 27F earthquake of 2010. According to a Twitter spokesperson, accounts increased almost 500% a few weeks after the impact (Emol, 2010). Twitter not only became an important source of information for the population, but also represented a shift in Chilean journalism, since journalists and information media began creating accounts and using Twitter as an additional professional tool (López-Hermida & Claro, 2011; Saéz & Peña, 2012). There was a flow of messages about missing and dead people, the condition of highways, basic services, ways of donating, and even tsunami alerts (Dickinson, 2010). Despite failures in telecommunications infrastructure, a few hours after the event the hashtag #terremotoenchile [trans. earthquakeinchile] was a worldwide “trending topic” (Mendoza, Poblete, & Castillo, 2010).

Prior work has also delved into the complexities of working with Twitter. Among these, the amount of information delivered—sometimes deemed excessive /or insufficient—how to detect information on particular interests, and the extreme emotionality of its content (Keating, 2010). Others have focused on the problem of rumor detection, which is a major challenge for journalists in times of disaster, due to time pressures and lack of skill regarding online information verification. For that reason, researchers have developed algorithms to detect the diffusion of rumors on Twitter (Mendoza et al., 2010).

Intermedia Agenda Setting

One of the central propositions of agenda setting theory is that the public uses the news media to determine the social importance of an issue (McCombs, 2014). In other words, audiences give value to different topics according to what journalists and news editors decide to cover in the news. To this first level of effects, agenda setting theory has added a second level of effects, defined as the influence of the news media in defining the most salient attributes by which the public comes to understand an issue (López-Escobar, Llamas, McCombs, & Lennon, 1998). And more recently, a network agenda setting model has been explored, in which the network relationships among issues and their attributes is transferred from the news to the public (Guo, 2012; Guo & McCombs, 2016).

A major determinant of journalism's power to set the public agenda stems from the repetition of issues, attributes, and how these are related, across media. Journalists and news editors often decide what to cover (and how) based on professional norms and imitation. As McCombs and Valenzuela (2014) noted: "Across the world, the norms of journalism exert a powerful pressure toward similarity in telling the news of the day." Journalists tend to exhibit a common set of news values and information sources (Gans, 1979), especially when they work in the same geographical area and/or news beat. So-called "pack journalism" (Frank, 2003) is a vivid manifestation of news professionals' preference for homophily. Imitation, in turn, is—among other causes—due to journalists regularly validating their sense of news by observing the work of their colleagues, a process of redundancy that results in mutually reinforcing spirals of influence among media agendas. This process of influence of issues, attributes, and networks of agendas between different media constitute a whole area of research in the agenda setting tradition, known as intermedia agenda setting. Since the seminal agenda-setting study of Chapel Hill (McCombs & Shaw, 1972), there is abundant evidence across the world showing a high degree of consistency within the agendas of the mainstream news media, both analog and digital (Boczkowski, 2010; King, 1994; López-Escobar et al., 1998). In Chile, research conducted for the 2000–2005 period found a median correlation of 0.95 among the agendas of television newscasts, while for newspapers the median correlation was 0.68 (Valenzuela & Arriagada, 2011).

With the development of the internet and social media such as Twitter, Facebook, and YouTube, some intermedia agenda setting studies have begun to question the thesis of thematic convergence and homogenization. The rationale, in this case, is that audience participation and the 24/7 news cycle typical of online media challenge the standards of professional journalism. For instance, some authors have argued that the asymmetry of the media-audience relationship is becoming more symmetrical (Hermida, 2010). In terms of news cycle, the time for delivering news has been greatly reduced, to the point that journalists on social media can deliver the news directly with their followers, as news events develop. These changes may challenge professional journalism standards, at least in terms of how standards

apply to social media such as Twitter. The study of Lasorsa et al. (2012) showed that reporters and editors express opinions, share user content, and make their news work more transparent on a more frequent and free basis through online social networks than through traditional media. Thus, to the degree that journalists behave differently on social media than on traditional media, prior research that finds support for intermedia agenda setting may not be applicable in the current media environment. Already some authors have posited that social media may produce different thematic agendas than traditional media (Delwiche, 2005).

In any case, a new and highly valuable field has opened for intermedia research in journalism, so much so that studies in the field have proliferated, albeit with diverging results. On the one hand, there is evidence that online platforms, including social networks, discussion fora and search engines can influence news coverage in traditional media (Meraz, 2011; Sayre, Bode, Shah, Wilcox, & Shah, 2010). But there are also studies that find an inverse relationship; that is, that legacy media are key for setting the agenda of blogs (Lee, 2007), online searches (Ragas, Tran, & Martin, 2014), and debates on Twitter and Facebook (Groshek & Groshek, 2013). Furthermore, a dynamic relationship has been found, with the agendas of the traditional media and the digital media mutually reinforcing each other, with no clear dominance of one over the other (Neuman, Guggenheim, Jang, & Bae, 2014). Despite the insights gained from prior research, there is a lack of studies comparing the thematic agendas of professional journalists on Twitter versus traditional media. The current study is a step in that direction. Should our results show a positive, strong relationship between the issue priorities of journalists on Twitter and on broadcast television, our study would support the basic tenet of intermedia agenda setting. Finding a negative or null relationship would, on the contrary, challenge this aspect of agenda setting theory.

The Case Study

The Chilean Media Context

Ever since democracy was reinstated in Chile in 1990 after a 17-year military dictatorship, the country has been lauded as the “poster child” for political stability and economic development in Latin America (Siavelis & Morgenstern, 2008, p. 4). The wave of free-market policies adopted by the military in the 1970s and 1980s transformed the media system, especially television. Broadcast television became the dominant medium, both in terms of audience share and advertising revenue (Godoy, 2016). By 2011, although 63% of Chilean households were subscribed to cable or satellite television, more than 90% of the population still used broadcast TV news as their main source for news (Consejo Nacional de Televisión, 2011). In terms of content, the country’s five main broadcast news shows exhibit a high level of homogeneity in coverage and an exaggerated dependence on official sources (Valenzuela & Arriagada, 2011). The uniformity of the news programs means that

the population is exposed to the same news agenda, increasing the power of broadcast news to influence people's judgments about which issues are of national importance. Empirical evidence of this trend was provided by Dussailant (2005), who found that the mean correlation between the public and media agendas during the 1999 Chilean presidential election was between $+0.71$ and $+0.97$. These figures are well above the average of $+0.53$ found by Wanta and Ghanem (2007) in their meta-analysis of 90 separate agenda-setting tests.

Comparing the TV agenda with the Twitter agenda is justified, in part, because of the sheer popularity of the microblogging platform among the local population. By 2011, the penetration rate of Twitter among the adult population was nearly 13%. While the figure for Facebook was much larger (54%), the rate for Twitter was still the highest in Latin America and the fourth globally (Glickhouse, 2013; Rogers, 2012). And because Twitter has been mostly used as a news source for public affairs—compared to Facebook's focus on private or social life—major events have usually increased the demand for using the microblogging site, as was the case with the 27F earthquake (see above). It should not come as a surprise, then, that a representative survey conducted in 2010 in Chile showed that 43% of respondents said sites like Twitter helped them stay informed about important news events, whereas only 26% of them said the same of newspapers (Godoy & Gronemeyer, 2012, p. 29). The use of Twitter as a news provider is exacerbated within the political and economic elites, as surveys show that high-income individuals are overrepresented in the Twittersphere in terms of producing and consuming content compared to the general population (Scherman, Arriagada, & Valenzuela, 2015, p. 5). Again, this may explain—in part—why journalists in Chile are attached to Twitter as an information source: when online, newsmakers are more likely to be on Twitter.

The 27F Earthquake

Chilean journalism was put to the test during the earthquake and later tsunami that occurred at 3:34 a.m. on February 27, 2010 (27F). It was a disaster whose strength and magnitude (8.8 on the Richter scale, the second-strongest ever recorded in the country after the 9.5 event of 1960) disrupted journalistic routines and protocols (Pellegrini, Puente, & Grassau, 2015). In less than an hour, the Chilean coast endured a series of tsunamis that submerged large geographical areas. In total, 527 citizens died, 35 disappeared and there were more than 400,000 lost homes. Two hours after the disaster, TV news stations initiated an information marathon, with 24-hour broadcasts and prime newscasts longer than usual (2 to 3 hours long). Journalists and news anchors were deployed in the worst-damaged areas, some of them reachable only through helicopters (Puente et al., 2013b). At the same time, dissemination was unleashed through Twitter, the microblogs social platform created only 4 years earlier. In fact, our data show that the first tweet about the earthquake produced by a professional journalist—"Temblor heavy" (trans. heavy quake) (Solís de Ovando, 2010)—was recorded at 3:36 a.m., 2 minutes after the first shock wave. Thus,

Chilean journalism began experiencing what other authors already described for the United States: the traditional passive relationship from the screen to the audience was linked to the horizontal and permanent relationship between journalists and people who had this technology (Lasorsa et al., 2012).

The 27F earthquake became an excellent opportunity to review news coverage of television and Twitter during the first week following the event. Prior work based on content analyses and audience surveys has identified several deficiencies in the way Chilean broadcast journalism covers disasters, including the prioritization of emotion and human interest angles over facts and expert sources. In fact, following earthquakes, wildfires, volcano eruptions, and floods, Chile's National Television Council (CNTV) as well the Media Ethics Council have had to conduct independent inquiries and pronouncements in response to complaints against TV news coverage. Journalists, in turn, tend to acknowledge that their work in disasters lacks an overall perspective on the events (Puente et al., 2013a, 2013b). We do not know whether the same dynamics apply to journalistic coverage of disasters on social media in Chile, as we are not aware of published work in this area. Thus, the current study is a starting point for drawing conclusions regarding how similar or not are news agendas on television and Twitter.

Research Questions and Hypothesis

From the discussion on journalism at times of disaster in the existing literature, the relationship among the agendas of traditional media and online, social media, and agenda setting theory, it is possible to pose several research questions and hypotheses. First, it is necessary to separately examine the characteristics of the thematic agendas of both the television newscasts and those posted by journalists on Twitter. The aim of this is to establish potential convergence and divergence areas in the way each media channel covered 27F. Specifically:

RQ₁: Which were the thematic agendas and how did they evolve in the television newscasts and the posts by journalists on Twitter during the first week following 27F?

From the perspective of intermedia agenda setting, it is possible to expect that the thematic priorities of news in television and in the tweets by journalists covering the earthquake of 27F should be similar. As a hypothesis, then, we posit that:

H₁: There is a positive and statistically significant relationship between the thematic agendas of television newscasts and posts by journalists on Twitter during the first week following 27F.

This hypothesis, of the convergence or homogeneity of agendas may be contrasted with the hypothesis of divergence or fragmentation of agendas (Lee, 2007), which could be considered as the null hypothesis:

H₀: There is no statistically significant relationship between thematic agendas on television newscasts and posts by journalists on Twitter during the first week following 27F.

The previous hypotheses refer to the global relationship between the agendas of journalists on television and on Twitter. However, as Neuman et al. (2014) stated, the inter-media agenda setting process is dynamic. The relationships among news agendas on television and Twitter may be characterized as one-way (one agenda leads, the other follows) or two-way (both agendas influence each other). In the latter case, the relationship may be further specified as symmetrical (both agendas influence each other about equally) or asymmetrical (one agenda is more influential on the other than vice versa). Given that the literature on the topic is not clear regarding which alternative is more applicable, it is not possible to pose a directional hypothesis regarding the inter-media agenda setting dynamics for the 27F case. Interestingly, Neuman and colleagues' (2014) study is—to our knowledge—the only published work so far that has examined agenda-setting dynamics of social media and traditional media around the issue of natural disasters. In their case, they found a unidirectional influence of social media buzz on the news media agenda. Unfortunately, their measure of the social media agenda centers on the public at large, not on journalists. Thus, we examine the following research question:

RQ₂: How did the relationship between the thematic agenda of television newscasts and the thematic agenda of journalists posting on Twitter vary over time during the first week following 27F?

Method

Overview

The time period analyzed encompasses from 3:34 a.m., February 27, 2010—when the earthquake was first felt in Chile—until 3:34 a.m., March 5, 2010, exactly a week later. We chose the first week following the earthquake based on mental health and trauma literature, which points out that this timespan includes the emergency response as well as the beginning of the recovery phase following a disaster. In order to measure the news agenda, the content of prime time newscasts of the four main national television networks was analyzed. In the case of Twitter, the analysis covered all message types posted on Twitter by a sample of 270 professional journalists working for Chilean media, including television news, newspapers (print

and online), and radio stations. We compare TV news with Twitter posts from journalists working in other media sectors for theoretical and methodological reasons. On the one hand, prior work conducted in Chile shows a very strong correlation ($r = .83$) between the issue agendas of TV and other traditional media (Valenzuela & Arriagada, 2011, p. 4). By focusing on TV news, we believe we are—indirectly, at least—also getting at the issue agenda of other traditional media, such as newspapers. In addition, survey data in Chile and elsewhere show that broadcast journalists engage in activities on social media similar to those of journalists in other areas (Gulyas, 2013; Valenzuela & Halpern, 2015). On the other hand, restricting our sample of Twitter users to broadcast journalists would leave us with a rather small sample of unique users and posts for the analysis.

We combined all types of possible communications on Twitter (i.e., tweets, retweets, modified retweets, and replies) into a single stream of messages, in similar fashion as social network analysts who condense different types of connections or “edges” into a standard network to conduct a multiplex study (see Hansen, Shneiderman, & Smith, 2011, p. 37). Once both topical agendas were obtained, cross-sectional and longitudinal statistical analyses were performed in order to address the hypotheses and research questions.

Television News

Data Source. Recordings of the prime time news programs (9:00 p.m. to 10:30 p.m.) of *Canal 13*, *TVN*, *CHV*, and *Mega* were obtained for the period February 27–March 5, 2010. Although the beginning and ending of the newscasts varied by a few minutes, this study included the full version of each during the week under analysis. A total of 813 news stories relating to the earthquake and tsunami were transcribed by a team of 10 journalism undergraduate students working under the supervision of the second and third authors of this study. For each news story, students were instructed to record all spoken language, date, airing time, duration, and network.

Coding. The coding instrument was developed in the context of a larger project devoted to understanding journalists’ behavior in times of natural disasters through a sequential process that included a literature review of similar studies and a series of in-depth interviews with journalists and editors in Chile (for details, see Puente et al., 2013a, 2013b). Manual coding was conducted by eight trained coders, all of them native Spanish speakers. For the current study, we focused on data on the main topic of each news story. Coders had to choose 1 of 19 issue categories related to the 27F disaster. Whenever more than one of the defined categories was present, the main topic was determined by that with greatest length in the story. We further aggregated the stories into 11 categories because several issues had very low frequency of occurrence (e.g., at or below 1% of the total sample) that could distort the statistical analysis. In addition, prior agenda-setting studies compare lists of a dozen issues at most (Wanta & Ghanem, 2007). To calculate intercoder reliability, a subsample of 31 news stories was

analyzed. Using the ReCal3 software (Freelon, 2010), Krippendorff's α was 0.64. Although the latter is just below the cutoff value of 0.67 (Krippendorff, 2004, p. 241), it is mainly due to the unbalanced distribution of categories, a typical problem of Krippendorff's α (e.g., Burscher, Odijk, Vliegthart, de Rijke, & de Vreese, 2014). In fact, for date and time of airing of the story (the other variable used in this study), α levels reached 1.00. For other variables coded in the content analysis not used in the current study, α levels were above 0.70 (Puente et al., 2013b).

Twitter

Data Source. Data were generated using the commercial website Sifter (<http://sifter.texifter.com>), which performs historical searches of Twitter. It was specifically asked to produce a database with all messages posted between February 27 (00:00 h GMT) and March 5, 2010 (24:00 h GMT) by users whose Twitter biographies included the word "journalist" and had "Chile" as the geographical location of their public profile. This query produced a sample of 63,191 tweets and 1,226 unique users. Subsequently, the first author and two research assistants reviewed each of the unique users in order to decide—based on the information provided in their biographies, as well as that existing in LinkedIn and public lists of Chilean journalists on Twitter—whether the user was, beyond any reasonable doubt, a professional journalist working for a news media organization when 27F occurred. This reduced the number of unique users analyzed to 308, which altogether produced 18,332 tweets during the period under analysis. From this total, a random selection of 35% was done for further manual content analysis ($N_{\text{tweets}} = 6,370$; $N_{\text{unique users}} = 270$).

Coding. The code sheet was developed by the first author as a replication and extension of the instrument developed for coding the TV news coverage of 27F. Two coders not involved in the coding of the TV newscasts were trained to classify each of the tweets in the sample into one of the same 19 original thematic categories employed for the TV analysis. Subsequently, these were recoded into the same 11 topics of the television agenda. If the tweet did not relate to the disaster, it was excluded from the analysis (58% of the tweets were linked to the disaster; $N = 3,719$). In order to calculate inter-coder reliability, a subsample of 302 cases was selected and analyzed with the ReCal2 software (Freelon, 2010). Krippendorff's α 's were 0.82 for issue coding and 1.00 for date and time of the tweet.

Statistical Analysis

In order to answer the first research question (RQ₁), an aggregate thematic frequency table was computed for the study period. This table was used for calculating relative coverage percentages, which were later turned into graphs to perform a

visual inspection of each of the thematic agendas. The general degree of convergence between the journalism agendas on television and Twitter (H_0 and H_1) was examined by estimating the correlation between both aggregate agendas for the entire period between February 27 and March 5, 2010. Spearman's rank correlation ρ coefficient was estimated by following the classic agenda setting method (McCombs, 2014).

The Twitter data were divided in two time series in order to study the agenda setting dynamics (RQ_2). One series with all messages posted during the first 6 hours immediately before the beginning of the prime time newscasts and another series with all messages posted during the 6 hours immediately following the end of the prime time newscasts. A third time series was created with the data from the television newscasts. The longitudinal data were then aggregated until they formed a panel (11 topics x 6 days = 66 total observations for each series). To analyze temporal dynamics, several bivariate cross-correlations were estimated. Subsequently, two multiple regression models were conducted: one to predict the television agenda for Time 2 based on the television agenda for Time 1 and the Twitter agenda prior to Time 2 but after Time 1 (i.e., Time 1.5), and another equivalent model, but changing the order of the variables (i.e., predicting the Twitter agenda at time 2.5 based on the Twitter agenda at Time 1.5 and the television agenda at Time 2). Given the data structure, the regressions were estimated with panel-corrected standard errors (Beck & Katz, 1995). Diagnostic tests revealed that the data met the statistical requirements for linear regression and that it was not necessary to employ other techniques, such as fixed-effects or random-effects regression.

Results

RQ_1 inquired about the thematic agendas and how they evolved on television news and on journalists' Twitter posts during the first week following 27F. Table 1 presents the relative frequencies of each topic. The largest amount of tweets fit into the categories "victims, people who have lost their homes, and missing people" (an average of 24%) and "rescue efforts, volunteering, collaboration, support, and international messages" (an average of 22%). Nevertheless, the amount of coverage dedicated to these topics varied across the analysis (see Figure 1). Over time, messages about "rescue efforts, volunteering, collaboration, support, and international messages" increased (from 6% to 41%), whereas those referring to "victims, people who have lost their homes, and missing people" decreased (from 33% to 10%).

A different pattern of results emerged from the analysis of newscasts. A majority of stories aired during the period dealt with "infrastructure, housing, transport and public works," whose amount remained constant at approximately 22%. Stories about "victims, people who have lost their homes, and missing people" (nearly 12%) and "rescue efforts, volunteering, collaboration, support, and international

Table 1
Rank-Order of Journalists' Issue Agendas on Television and Twitter

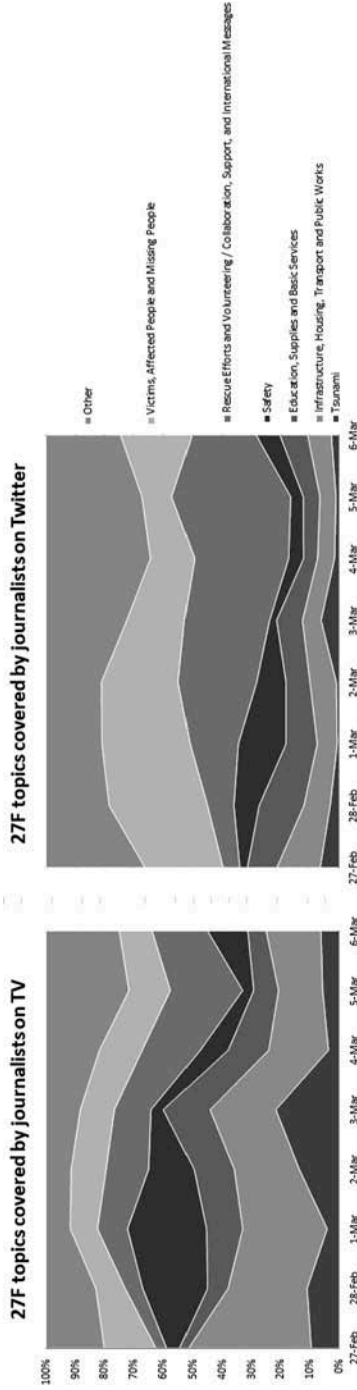
Topic	Television Newscasts		Journalists on Twitter	
	Order	%	Order	%
Infrastructure and Housing/Transport/Public Works	1	26	5.5	8
Victims, people who have lost their homes, missing people and Missing People	2.5	13	1	24
Rescue Efforts and Volunteering/Collaboration, Support, and International Messages	2.5	13	2	22
Safety	4	12	5.5	8
Education/Supplies and Basic Services	5	11	3.5	10
Tsunami	6	10	10	3
Earthquake	7	7	7	7
Political Activities	8.5	3	8.5	4
Religious Activities, technology and others	8.5	3	8.5	4
Health/Environment	10	2	11	1
Communications and the media/Viña Festival	11	1	3.5	10
Valid Cases	813 stories		3,719 tweets	

Note. Spearman's ρ rank correlation coefficient = 0.54 ($p < 0.05$, one-tailed)

messages" (about 15%) were also covered, but in lower proportion. The category "education, supplies, and basic services" remained unchanged for both Twitter and television, hovering at 9% to 10%, respectively, with a slight difference at the beginning of the cycle, when the topic was more significant for journalists posting on Twitter than for the television newscasts.

News and tweets about the tsunami deserve special mention. After the earthquake, the Central and Southern coasts of Chile experienced a tsunami that authorities did not provide any warning about and that was not publicly admitted by the authorities until several hours later. It was the media and journalists who characterized as a tsunami the strong and destructive waves that hit the coastal towns and caused 150 deaths. Although this topic was covered by newscasts during the first and second days, it dominated broadcasts on March 3 (22%), when it was evident that emergency administrators and government authorities had utterly failed at alerting the population about the tsunami. Journalists on Twitter, on the other hand, considered the topic but did not paid too much attention to it (with an average of 3% of stories devoted to it). In general, it can be stated that journalists on Twitter mostly covered news dealing with victims and evacuees, while on television they spent more time covering damages to infrastructure and housing.

Figure 1
Evolution of Journalists' Issue Agendas on Television and Twitter.



The analysis then proceeded to test H_1 —that there is a positive and statistically significant relationship between the thematic agendas of television newscasts and posts by journalists on Twitter during the first week following 27F. The null hypothesis (H_0), in this case, is that there is no statistically significant relationship between both agendas. As Table 1 indicates, the Spearman's rank correlation coefficient was positive ($\rho = 0.54$) and statistically significant ($p < 0.05$). This result rejects the null hypothesis (H_0) and, therefore, supports H_1 .

The following research question (RQ₂) addressed the way the relationship between the two agendas changed over time. A series of Spearman rank cross-correlations of the agendas of television newscasts and that of journalists posting on Twitter were estimated. As Figure 2 shows, there is a positive and significant correlation between the agenda of television newscasts over a given time and the agenda of journalists posting on Twitter at a later time ($\rho = 0.23$, $p < 0.05$ in the initial test, and $\rho = 0.35$, $p < 0.05$ in the replicated test). Nevertheless, this association is somewhat weaker than the correlation between the agenda of journalists posting on Twitter and the subsequent television news agenda ($\rho = 0.43$, $p < 0.01$). On the other hand, there is evidence of strong inertia in the issues attended by journalists on Twitter, as evidenced by the strong correlation of the lagged issue agenda on the current issue agenda ($\rho = 0.72$, $p < 0.01$). The same cannot be said of TV news, as the issue agenda at time 1 was not associated with the issue agenda at time 2 ($\rho = -0.07$, n.s.).

To provide a more stringent test of intermedia agenda-setting dynamics than bivariate correlations, Table 2 reports the results of the two regression models, both of which test if an increase (decrease) of the attention given to each topic on one agenda is correlated to an increase (decrease) of the attention given to that same topic on the other agenda, controlling by the inertia that causes each agenda to tend to reproduce itself over time. Model 1 shows that the agenda of journalists on Twitter significantly predicts and anticipates the agenda of television news. This relationship is not reciprocal, since Model 2 shows that the TV news agenda does not have a significant influence on journalists' agenda on Twitter after controlling for inertial effects.

Discussion

This study compared the issue agendas of journalists on Twitter and TV newscasts during the first week following the catastrophic earthquake and tsunami that occurred in Chile on 27 February 2010. In line with agenda setting theory and previous intermedia agenda-setting studies, a positive and significant correlation was found between both agendas ($\rho = 0.54$, $p < 0.05$). However, this correlation is lower than in previous studies, which normally report associations in the 0.70–0.90 range (see McCombs, 2014, pp. 128–132). When looking at the rankings of the different issues, it is clear that journalists posting on Twitter were particularly interested in messages related to victims, missing people, and rescue efforts. On television, journalists exhibited a more heterogeneous issue agenda, also covering the damages to housing, transportation routes, and the tsunami.

Figure 2
Bivariate Correlations (Spearman's ρ) of Journalists' Agendas on Television and Twitter.
 * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$ (one-tailed)

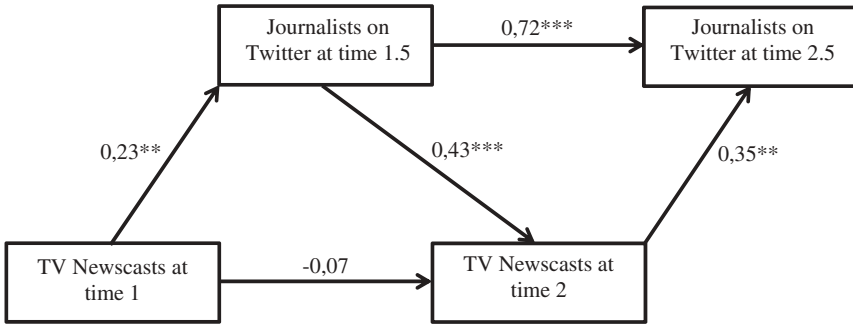


Table 2
Intermedia Agenda-Setting Dynamics: Journalists' Issue Agendas on Television and Twitter

Independent Variables:	Dependent Variable: TV News at time 2 (Model 1)		Dependent Variable: Journalists on Twitter at time 2.5 (Model 2)	
	B (SE)	t value	B (SE)	t value
Journalists on Twitter at time 1.5	0.38*** (0.13)	2.75	1.06*** (0.13)	7.97
TV News at time 1	-0.17 (0.26)	-0.66	-	-
TV News at time 2	-	-	-0.10 (0.12)	-0.77
Constant	0.07** (0.03)	2.23	0.003 (0.02)	0.21
R ²	0.19		0.61	
Durbin Watson	1.23		1.81	
Valid Cases	66		66	

Note. The cells report non-standardized regression coefficients (B) for regression data with panel-corrected standard errors (SE) for panel data in parenthesis.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$ (one-tailed)

We can think of two explanations for this divergence. First, related to medium characteristics, damages to properties and the tsunami provide good visuals for TV crews, enabling them to focus their coverage on these issues. On Twitter, in contrast, several journalists tweeted and retweeted, as well as responded to, public calls to

find missing people or have emergency crews attend to victims and evacuees. Thus, Twitter enabled journalists to engage with a traumatized audience in a way television and traditional news media could not. A second explanation, stemming from the mental health and disaster management perspectives, is that journalists covering 27F used different media to fulfill what they see are different roles in a disaster. On Twitter they sought to exert a social contention role, whereas on television their role emphasized information and supervising authorities. This duality of purposes has been studied before as the dilemma between covering information in detached fashion and providing assistance to those in need (Puente et al., 2013b). Thus, Twitter and broadcast news play a true complementary role for journalists.

Despite these differences, it is still the case that by and large the agendas of journalists on Twitter and television converged. This is to be expected. More interesting are the findings related to the dynamics of the intermedia agenda setting process. The results show a reciprocal but asymmetrical relationship in which TV news shows are more likely to “adopt” the issue agenda of journalists’ on Twitter than vice versa. This is consistent with prior evidence that online platforms, including social networks, discussion forums, and search engines can influence news coverage of traditional media. Several reasons may explain the anticipatory, indexing role played by Twitter. Perhaps broadcast journalists turned to Twitter as a main source for deciding what’s news and what to cover. Relatedly, broadcast journalists may have promoted their stories well in advance through Twitter. An additional possibility relates to medium characteristics: it is easier to cover disasters using 140-character messages than 140-second TV news packages. Of course, it may well be that a combination of factors explains the leading role played by journalists on Twitter.

Notwithstanding the reasons for a Twitter-driven news agenda, the fact remains that our data, which are at the time of writing more than 5 years old, provide an early lens into the agenda setting function of social media among television news professionals. Prior research has demonstrated that Twitter activity is influenced by the TV agenda and TV audience ratings (e.g., Fábrega & Vega, 2013). The results of the current study, in contrast, suggest that the influence of social media on broadcast news may be stronger. In her ethnographic account of news making at *The New York Times*, Usher (2014, p. 19) describes a mantra inside newsrooms that compels journalists to turn to social media and reach out to fleeing audiences. It is unlikely that this mantra was present in Chilean newsrooms in 2010, for at the time social media, and Twitter specifically, was not a major source of information for news audiences. Rather, it seems that from an early start Twitter became an attractive source for acquiring information, either because this information was perceived as valuable or was not otherwise available to news professionals. Prior research has shown that a major determinant of Twitter adoption among journalists is the utility of information shared through this platform (i.e., regardless of seeking audience attention and/or engagement). Sometimes, even useless information on Twitter may prove beneficial to reporters, as Revers (2014) found in his analysis of Twitter adoption among political press corps. The findings of the current study are, thus, consistent with these accounts of Twitter succeeding among news professionals by providing valuable information.

Another implication of our results relates to the role played by the public in setting the agenda of traditional news sources, such as television, through Twitter. Recall that this platform is a publicly shared space, and journalists often retweet information from users—especially during crises. In our study, 39% of the messages posted by journalists on Twitter were retweets, and a further 3% were modified (i.e., edited) retweets. This means that, potentially, more than 40% of the agenda-setting power of Twitter on TV news during the 27F earthquake is explained by the public. Of course, this is an indirect influence, as it is journalists on Twitter who decide which messages to retweet. Ultimately, then, this study is also a suggestion that social media may question the classic assumption of agenda setting theory that the public has little influence on journalistic agendas (McCombs, 2014). While studying such possibility is beyond the scope of this article, other research is indicative of such a situation, either from a theoretical or empirical level (Jacobson, 2013; Neuman et al., 2014; Tran, 2014).

As in any study, there are limitations that future research needs to tackle. It is possible that a similar analysis of routine (not disaster) news reveals a different relationship between media agendas. In addition, this study focuses on issues, with no attention whatsoever to the frames with which different topics were covered. Relatedly, we approached our Twitter data from a multiplex network perspective, combining all different message types into a single set of messages. Perhaps an analysis distinguishing the issues of tweets from those of replies or retweets may change the interpretation of the results. There are also issues of sample size: with automated coding or machine learning, a larger sample of messages could be analyzed, yielding more detailed dynamics (Gil de Zúñiga, 2017). At the same time, the mechanisms and conditions that explain the convergence of agendas across social media and traditional media were not explored. There is also the possibility that a different time frame of study produces other findings. And because social media are ever-changing technologies, the results presented here may be extremely time-bound and tentative at best. Limitations notwithstanding, this study contributes to intermedia agenda-setting research with a new type of analysis that considers journalists as sources on Twitter vis-à-vis TV news. We shed light on the issues covered in disaster news, addressing the possibility that social and traditional media complement, rather than substitute, journalists' roles during a major catastrophe.

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Watching TV Series with Horror Content: Audience Attributes, Motivations, Involvement and Enjoyment

Carolyn A. Lin and Zhan Xu

This study is the first to explore the motivational, cognitive, affective, and personality factors that influence the enjoyment of and exposure to TV series with horror content. The most-watched TV series identified by 411 study participants were examined in the study. Results indicate that personality traits significantly predict cognitive and affective involvement with these programs and viewing motivations. Viewing motivations significantly influence viewers' cognitive and affective involvement with these TV series as well as their viewing enjoyment and frequency. While positive affect and negative affect are significant predictors of viewing enjoyment, viewing enjoyment has a positive effect on viewing frequency.

Even though violent and fright images could elicit negative affect, viewers continue to consume horror media content for enjoyment (Hoffner & Levine, 2005). According to Carroll (1990, p. 15), "Horror novels, stories, films, plays, and so on are marked by the presence of monsters." Grodal (2009) defines horror genres as involving "significant use of nonstandard physics or fantastic and supernatural scenes" (p. 97) and considers their central theme "the disgust caused by death and decay, and the fear of being haunted by powerful and often very biting supernatural agencies" (p. 113).

In recent years, television series such as *The Walking Dead* and *American Horror Story* have gained a strong audience following (Collins, 2013; Kissell, 2013). These serial dramas tend to focus on the relationships between the characters and contain some horror content—without fully embodying the substance of a horror film or true horror—as defined by Carroll (1990) or Grodal (2009). As noted by Wallenstein (2014), "The 'Walking' logline makes it seem like a slasher film... But that's really more of a hook ... at its heart a multilayered, character-driven piece ... a very thoughtful meditation on the difficulty of retaining one's humanity amid dire

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circumstances.” In essence, these TV series with horror content represent a unique genre, one that offers a character-driven narrative with a horror backdrop.

Past research has shown that the variables influencing audience enjoyment of horror films could include personality, cognitive, affective, and gender factors (Hoffner & Levine, 2005) such as empathy (Tamborini, 1996), aggressive tendencies (Fenigstein & Heyduk, 1985), excitation transfer (Zillmann, 1978), affective responses (Hoffner, 2009), and gender-role socialization (Zillmann, Weaver, Mundorf, & Aust, 1986). While a large body of literature exists for horror film viewing, research has yet to investigate why people watch TV series with horror content.

The current study intends to fill this empirical gap by exploring an initial set of conceptual queries. In particular, would motivations for watching these TV series be similar to those of horror films? Do the same personality traits that explain horror film watching also apply to TV series viewing? Would audience involvement with these TV series influence their viewing enjoyment or viewing frequency? The objective of the current study is to extend the current literature on the relations between the audience and horror films to include serial TV dramas with horror content. Specifically, we aim to develop and test a conceptual framework—based on the uses and gratifications perspective, personality traits, and gender factor—to explain audience involvement with TV series with horror content, viewing enjoyment, and viewing frequency.

Conceptual Framework

Rentfrow, Goldberg, and Zilca (2011) identified five dimensions of entertainment preferences, including the “Dark” dimension, which consists of eight music genres (e.g., punk, heavy metal), four television genres (e.g., horror, late night television), three film genres (e.g., horror, cult), and two genres from the book and magazine domain (e.g., horror, erotic). These eight media genres are generally characterized by their intensity, edginess, and hedonism. By implication, viewers who choose to consume dark media content may be motivated by the need for seeking gratifications that could bring them enjoyment stemming from the excitement of fear, suspense, and violence

The uses and gratifications (U&G) perspective proposes that people choose media content to meet their own psychological needs and derive gratifications from media consumption (Aubrey et al., 2012; Lin, 1999). Rubin (1984) suggests that viewing motives can be broadly categorized into two groups: information seeking and entertainment; people who desire information may prefer news programs, while people who wish to pass time often seek entertainment content.

In the current study, the U&G perspective could be useful in explaining why people watch TV serial dramas with horror content. Existing research has yet to apply the U&G framework to examine the motivations for watching serial TV dramas

with horror content—or their effects on audience involvement with such exposure—which is the key to explaining viewing enjoyment.

Viewing Motivation and Audience Involvement

The concept of audience involvement has been studied as the level of audience activity engagement due to viewing exposure. Rubin and Perse (1987, p. 247) describe audience activity as reflective of “cognitive, affective, and behavioral participation during and because of exposure” to television content. In the U&G and audience activity research tradition, cognitive and affective involvement have each been examined and validated as a mediator between TV viewing motivations and gratifications (e.g., Kim & Rubin, 1997; Lin, 1993a; Rubin, 1993). More recent research also indicates that media-use motives could be utilized as predictors of viewers’ cognitive and affective involvement with the media content, which could then lead to subsequent media-use effects (Lee & Taylor, 2014).

Research exploring horror film exposure via the U&G and audience involvement framework is scarce. Johnston (1995) identified a set of horror-film viewing motivations and tested their relations with cognitive beliefs and affective reactions toward graphic horror among adolescent viewers. Her findings indicate that while some viewing motives predict beliefs about horror movies as being “exciting, funny and enjoyable” (p. 540), other viewing motives predict either positive (e.g., feeling powerful or excited, p. 538) or negative affective responses (e.g., sadness, anger or loneliness, p. 539) associated with the exposure.

Based on the theory and literature on audience involvement (e.g., Godlewski & Perse, 2010; Lin, 1993a; Rubin & Perse, 1987), horror-film cognition and affect (e.g., Hoffner, 2009; Sparks, Spirek, & Hodgson, 1993; Sun, Rubin, & Haridakis, 2008) as well as Johnston’s (1995) study cited above, it is reasonable to assume that an individual’s viewing motivations for TV series with horror content could lead to differential cognitive and affective outcomes. To validate these assumptions, the following hypotheses are proposed.

H_{1a}: Stronger viewing motivation will predict greater cognitive involvement.

H_{1b}: Stronger viewing motivation will predict greater affective involvement.

As the factors of cognitive and affective involvement are both considered mediators between viewing motives and media use behavior, they are also interrelated concepts (Godlewski & Perse, 2010; Lin, 1993b; Perse, 1990). While cognitive involvement or “thoughts-related reactions” was found to be a positive correlate of cognitive elaboration associated with media-use experience, affective involvement was indicative of the affiliated feelings, emotions and arousal elicited from such experience (Park & Young, 1986). Perse’s (1998) study on TV-viewing channel changing, for instance, found that while less cognitive involvement with a program is linked to positive affect (e.g.,

happy, amused, and calm), greater negative affect (e.g., angry, fearful, and worried) is associated with greater attention and cognitive involvement. These findings seem to suggest that a more positive emotional state is related to less elaborate thought processing and the opposite is true for a more negative emotional state.

Empirical work examining the relations between cognitive and affective processing of TV dramas with horror content is currently unavailable. Hence, it would be important to explore these relations to help us better understand whether committing more cognitive effort would lead to more positive or negative affective outcomes, when exposed to the genre of TV series with horror content. The proposed research question aims to investigate this potential link between cognitive and affective involvement.

RQ₁: What are the relations between cognitive involvement and affective involvement?

Viewing Enjoyment

Zillmann (1978) suggested that as horror films often feature suspenseful and threatening plots with unexpected outcomes, viewers will continuously experience dysphoric feelings during exposure; this in turn could amplify their feeling of relief and enjoyment, when the story ends with a satisfying resolution due to an “excitation transfer” from during- to post-viewing period (Reisenzein & Gattinger, 1982; Zillmann et al., 1986). Hoffner and Levine’s meta-analysis (2005) similarly found a significant positive correlation between negative affect during horror-film viewing and viewing enjoyment.

Attempting to reconcile the juxtaposed notions of hedonism and negative affect in relation to horror film viewing, Andrade and Cohen’s (2007) study reported that the gratifications elicited from experiencing both negative and positive affect—along with a protective frame (or psychological detachment)—could enhance post-viewing enjoyment. In particular, the audiences’ ability to cognitively detach themselves from the horror by perceiving the character as fictional and being personified by actors, for instance, could help increase positive affect in approaching fear and reduce negative affect when avoiding fear.

In U&G research, the concept of viewing enjoyment has not been clearly identified as distinct from gratifications obtained. Nabi, Stitt, Halford, and Finnerty’s (2006) study examined viewing gratifications and enjoyment via a set of cognitive and affective assessment measures with reality and fictional TV programs. Their findings reveal that while positive gratifications such as happiness, relief, and parasocial relationships are related to viewing enjoyment, negative gratifications such as anger are negatively related to viewing enjoyment. Thus, depending on the program genre (e.g., reality or fictional programs), positive affect could contribute to viewing enjoyment, while negative affect could result in the opposite.

Taken together, the literature suggests that cognitive and affective involvement with horror film viewing as well as positive affective involvement with television program viewing could impact viewing enjoyment. To validate these assumptions in the current study context, two hypotheses are posited.

H_{2a}: Stronger cognitive involvement will predict greater viewing enjoyment.

H_{2b}: Stronger affective involvement will predict greater viewing enjoyment.

As elaborated above, cognitive involvement and affective involvement are regarded as mediators between viewing motivations and enjoyment of horror content (e.g., Nabi et al., 2006). Viewer enjoyment, motivated by specific viewing gratifications and influenced by cognitive and affective engagement with the content, then could lead to increased exposure to that content. For example, while adolescents' gore-watching motivations reflect their cognitive curiosity about violence and low level of fearful feelings (Johnston, 1995), these cognitive and affective responses lead to greater viewing enjoyment and higher viewing frequency (King & Hourani, 2007; Mundorf, Weaver, & Zillmann, 1989). To verify these empirical findings in the current study, a hypothesis is forwarded below.

H₃: Greater viewing enjoyment will predict higher viewing frequency.

Personality Attributes

Empathy reflects an individual's personality traits that respond emotionally to others' experiences or sharing "the responses of others" (Tamborini, 1991, 1996; Tamborini, Stiff, & Heidel, 1990). In media effect studies, empathy refers to empathetic reactions toward the media characters. Empathy, therefore, could be an important determinant of an individual's cognitive and affective response to the characters who are threatened or victimized in horror media. Tamborini (1996) contends that cognitively driven empathy will influence affectively elicited empathy due to exposure to horror content, such that viewers who more strongly respond to or "share" the characters' fright or suffering will experience more negative emotions.

Empathy could thus help trigger viewers' emotional reactions to media content (Zillmann, 2006). It could affect a range of emotional responses to media violence and fright (Tamborini, 1996) as well as the feeling of fear towards horror media content (Harris et al., 2000; Hoekstra, Harris, & Helmick, 1999). Empathic feelings can also lead to other negative emotions such as nervousness, anxiety, and depression, which may last during and after horror media exposure (e.g., Hoffner, 2009; Johnson, 1980; Sparks, 1989; Sparks et al., 1993).

Hoffner (1995) found that those with greater "empathic concern" and "personal distress" usually keep telling themselves that the scenes and characters are unreal—or try to distract themselves frequently—while they are watching horror scenes. Other studies also

reported similar negative affect mitigation strategies (e.g., Tamborini, 1991, 1996; Tamborini et al., 1990). Hence, empathic trait could prompt an individual to respond to a character's circumstance with sympathy or negative affect—such as distress and fear—which in turn could propel the individual to be more cognitively and affectively involved with the viewing experience itself. To verify these assumptions for the current study context, the following hypotheses are proposed.

H_{4a}: Stronger empathy will predict greater cognitive involvement.

H_{4b}: Stronger empathy will predict greater affective involvement.

Limited research has investigated how an individual's aggressive traits may influence their affective responses to different social situations. Aggressiveness traits can be reflected by such cognitive and affective tendencies as being intemperate, argumentative, irritable, angry, or hostile (e.g., Buss & Perry, 1992). Burt and Larson's (2007) study demonstrates that more aggressive individuals show greater potentiation of negative affect—such as hostility, guilt, disgust, and fear—than less aggressive individuals, after completing an aversive task (i.e., recollection of their worst memory). Early research between aggression and media use found that aggressive individuals enjoy seeing their own behaviors depicted as acceptable and normal in the media, aside from being more interested in violent media content (e.g., Fenigstein & Heyduk, 1985).

More recent studies confirm that aggressive individuals prefer and enjoy violent media content (e.g., Hoffner, 2009); they also watch more violent and horror movies (e.g., Greene & Krmar, 2005). Nonetheless, research has yet to directly examine the relationship between aggressive personality and affective arousal in relation to horror content exposure. The relevant literature suggests that a positive link may exist between: 1) aggressiveness and negative affect (Burt & Larson, 2007), 2) aggressiveness and enjoyment of violent media (Hoffner, 2009), and 3) negative affect and enjoyment of horror content (Zillmann, 1996). Based on this dynamic, a significant relationship may exist between aggressiveness and negative affect to facilitate horror media enjoyment and exposure. To validate this assumption, a hypothesis is postulated below.

H₅: Stronger aggressiveness will predict greater affective involvement.

Gender Influence

The relations between gender and the enjoyment of horror films have been widely examined in past research. For instance, Zillmann et al. (1986) reported that negative affect (i.e., distress) is associated with enjoyment of horror films for male viewers, but this relationship does not hold for female viewers. Mundorf et al. (1989) found that while men enjoy graphic horror and experience boredom with horror movies more than women, women report little enjoyment and are more frightened by horror media than men; callous

and manliness factors were surmised by the authors as the reason behind boredom with horror content among males. Likewise, female viewers also report more (Harris et al., 2000) and experience longer negative affect (Hoffner, 2009) than males, after watching horror movies.

Zillmann and Weaver (1996) contend that men and women exhibit expected gendered responses toward horror content, due to internalization of their gender-role socialization during childhood. However, this gender-role driven explanation may not fully explain why males and females react to violence and fright differently. For instance, Hoffner and Levine (2005) reveal that while males more than females enjoy extreme graphic horror (e.g., blood and gore), the same is true with the positive association between negative affect and viewing enjoyment; this gender difference in responding to horror content decreases however, as children and adolescents mature into adulthood.

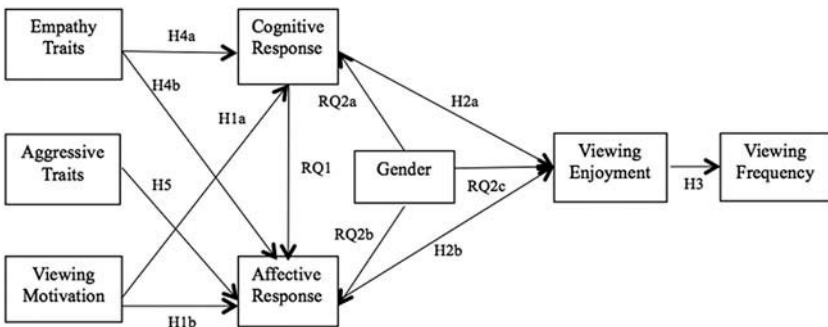
As the relations between gender, affect and enjoyment associated with horror content exposure remain inconclusive, the research questions below are posed to further explore them.

- RQ_{2a}: What are the relations between gender and cognitive involvement?
- RQ_{2b}: What are the relations between gender and affective involvement.
- RQ_{2c}: What are the relations between gender and viewing enjoyment?

Proposed Conceptual Model

To integrate the variables that comprise the research framework elaborated above, a conceptual model is proposed to test the validity of this framework (see Figure 1). This model illustrates that aggressive traits will predict affective involvement;

Figure 1
Proposed Conceptual Model



empathic traits and viewing motivations will impact cognitive and affective involvement. Gender as well as cognitive and affective involvement will affect viewing enjoyment. While gender is linked to both cognitive and affective involvement, cognitive involvement will also influence affective involvement. Lastly, viewing enjoyment will help account for viewing frequency.

Methods

Undergraduate students enrolled in a multi-section general education course at a large northeastern university were recruited and offered extra course credit to participate in an online survey, following the IRB-approved protocol. The study adopted the top 20 most popular horror TV series—published in the *Most Popular Horror TV Series* by IMDb.com—as the basis for serial TV program source (IMDb.com, 2015). TV series with horror content such as *American Horror Story* and *The Walking Dead* tend to target young adults and are highly popular among college students (Collins, 2013; Kissell, 2013). Hence, college students are a well-suited audience segment for studying this TV genre.

Whether a program could be included in the analysis was determined by whether at least a few episodes of a TV series during a given season were watched by the sample. After removing the cases that were incomplete or with errors, the study yielded 533 valid responses. Of these 533 participants, 411 (or 77% of all valid cases) responded to a viewing-frequency measure and indicated that they had watched at least a few episodes of the following shows during a given season: *The Walking Dead*, *American Horror Story*, *The Vampire Diaries*, *Teen Wolf*, and *Supernatural*. Thus, these 411 cases were analyzed for the study. This final sample consists of 49% males and 51% female with an average age of 19.2. The sample's racial composition reflects 68.2% Caucasian, 6.5% African American, 5.5% Hispanic, 16.2% Asian/Pacific Islander, 1.5% mixed race, and 2.2% other racial/ethnic groups.

Measurement

Empathy. This concept was measured by the “empathic concern” subscale of Davis’s (1983) “Interpersonal Reactivity Index,” which consists of 7 items measured on a 5-point scale (ranging from *not at all like me* to *just like me*). Confirmatory factor analysis (CFA) validated a single factor structure ($\chi^2(7) = 16.20$, $p = .02$, CMIN/df = 2.32, CFI = .99, RMSEA = .06) for all items; this factor had an alpha value of .87, after dropping one low-reliability item.

Aggressiveness. This variable was measured by the revised aggression measure developed by Buss and Perry (1992). The 6-item measure was assessed on a 5-point scale (ranging from *not at all like me* to *just like me*), with an alpha value of .87; CFA

results showed a good model fit ($\chi^2 (2) = 6/98$, $p = .03$, $CMIN/df = 3.49$, $CFI = .995$, $RMSEA = .08$).

Viewing Motivation. Seventeen items from Rubin's (1983) television viewing motives scale were adapted to describe viewing motivations associated with the TV series included in the study in general, on a Likert scale (ranging from *strongly disagree* to *strongly agree*). A principal component factor (with Varimax rotation) of these items yielded four factors, explaining 77.7% of the total variance. CFA showed a good fit for the four-factor model ($\chi^2 (84) = 217.53$, $p < .001$, $CMIN/df = 2.59$, $CFI = .98$, $RMSEA = .06$). Reliability coefficients for these four factors include: relaxation (three items, $\alpha = .91$), escape (five items, $\alpha = .88$), passing time (three items, $\alpha = .87$) and entertainment (five items with $\alpha = .95$, after dropping one low-reliability item).

Cognitive Involvement. The 5-item Elaboration Scale from Perse (1990) was used to measure cognitive involvement with the TV series included in the study in general, on a Likert scale, ranging from *Strongly disagree* to *Strongly agree*. CFA showed a good model fit ($\chi^2 (1) = 2.66$, $p = .10$, $CMIN/df = 2.66$, $CFI = .998$, $RMSEA = .06$). After dropping one low-reliability item, the four-item alpha value was .86.

Affective Involvement. Twenty-one items from "The Mood Adjective Check List" (Nowlis, 1965) were adapted to measure affective involvement with the TV series included in the study in general, on a five-point scale (ranging from 1 = *Clearly does not describe my feelings* to 5 = *Clearly describe my feelings*). A principal component factor analysis (with Varimax rotation) of these items resulted in three factors, explaining 71.65% of the total variance. CFA revealed a good fit for the 3-factor model ($\chi^2 (157) = 431.27$, $p < .001$, $CMIN/df = 2.75$, $CFI = .96$, $RMSEA = .07$). These three factors include: negative state (six items, $\alpha = .90$), positive state (six items, $\alpha = .95$), and neutral state (nine items, $\alpha = .94$).

Viewing Frequency. Participants were asked to rate how often they watch the 20 TV programs with horror content on a 6-point scale ranging from *I have never watched the show* to *I have watched all the episodes for at least one season*. The responses that reflect the viewing of "at least a few episodes," "more than half of all episodes," "most of the episodes" and "all the episodes" for at least one season were recoded, summed and averaged to create a viewing frequency index. Five shows that met this criterion—*The Walking Dead*, *American Horror Story*, *Supernatural*, *The Vampire Diaries*, and *Teen Wolf*—were included in this index.

Viewing Enjoyment. Participants were asked to rate how much they enjoy watching the programs on a 6-point scale ranging from *not applicable* to *like it a lot*. An index was created by summing and averaging the total scores across the five shows mentioned above.

Results

Frequency analysis shows that participants on average watched between “more than half of all episodes” and “most of the episodes”—for at least one season of all five shows included in the analysis—*The Walking Dead* ($M = 2.82$, $SD = 1.36$), *American Horror Story* ($M = 2.76$, $SD = 1.32$), *The Vampire Diaries* ($M = 2.56$, $SD = 1.31$), *Teen Wolf* ($M = 2.26$, $SD = 1.32$), and *Supernatural* ($M = 2.03$, $SD = 1.24$). Descriptive statistics, including the means and standard deviations for all key variables and their zero-order correlations, are reported in [Table 1](#).

Research Hypotheses

A multiple regression procedure with ordinary least squares and backward elimination tested the hypotheses and research questions. Results of the multiple regression tests are presented in [Table 2](#).

H_{1a} states that stronger viewing motivation will predict greater cognitive involvement. Of the four viewing motivation variables, only the escape motivation significantly predicted cognitive involvement ($\beta = .28$, $p < .001$); H_{1a} was thus only partially validated. H_{1b} postulates that stronger viewing motivation will predict greater affective involvement. While the motivation for entertainment ($\beta = .20$, $p < .05$) and escape ($\beta = .34$, $p < .001$) was each found to predict higher negative affect, the motivation for relaxation ($\beta = -.43$, $p < .001$) did so with lower negative affect. Both entertainment ($\beta = .46$, $p < .001$) and relaxation motivations ($\beta = .24$, $p < .001$) were significant predictors of higher positive affect; the latter ($\beta = .42$, $p < .001$) also positively predicted neutral affect. Combined, these findings provide sufficient support for H_{1b} .

H_{2a} assumes that greater cognitive involvement will predict more viewing enjoyment. H_{2a} was not supported, as the regression result was not statistically significant. H_{2b} presupposes that greater affective involvement will predict more viewing enjoyment. Findings indicate that while greater affective involvement ($\beta = .31$, $p < .001$) predicted more viewing enjoyment, greater neutral affect negatively predicted ($\beta = -.20$, $p < .001$) less viewing enjoyment, rendering only partial support for H_{2b} . H_3 states that more viewing enjoyment will positively predict higher viewing frequency. This hypothesis was supported, as the regression result was statistically significant ($\beta = .44$, $p < .001$).

H_{4a} posits that stronger empathy will predict greater cognitive involvement. The hypothesis was supported, as evidenced by the significant regression result ($\beta = .13$, $p < .05$). H_{4b} proposes that stronger empathy will predict greater affective involvement. H_{4b} was not supported, as empathy was not significantly related to negative, positive or neutral affect. H_5 presumes that stronger aggressiveness will predict greater affective involvement. Findings reveal that aggressiveness was a positive predictor of positive affect ($\beta = .09$, $p < .05$), but not a significant predictor of negative or neutral affect. Thus, H_5 was only partially validated.

Table 1
Descriptive Statistics for All Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender												
2. Aggressive	-.03											
3. Empathy	.24**	.12*										
4. Entertain	-.07	.21**	.18**									
5. Escape	.03	.11*	.02	.37**								
6. Pass time	.04	.12*	.18**	.48**	.47**							
7. Relax	-.11*	.17**	.07	.61**	.45**	.38**						
8. Cognitive	-.10*	.06	.08	.10	.26**	.09	.17**					
9. Negative	.03	.05	.07	.10	.27**	.14**	-.12*	.18**				
10. Positive	-.12*	.20**	.06	.56**	.28**	.21**	.50**	.16**	.11*			
11. Neutral	-.22**	.08	-.05	.29**	.19**	.19**	.43**	.06	-.01	.58**		
12. Enjoyment	.04	.17**	.10*	.54**	.18**	.21**	.37**	.12*	.06	.46**	.14**	
13. Exposure ⁺	.01	.12*	.02	.43**	.09	.06	.27**	.05	-.03	.30**	.10	.55**
M	.51	3.25	3.74	3.57	2.64	3.35	3.07	2.6	2.5	2.96	2.64	3.67
SD	0.50	0.82	0.70	1.00	0.93	0.98	1.06	0.93	0.96	1.00	0.92	0.98
N	403	402	403	401	401	401	401	408	403	406	404	399

Note. Exposure (or Viewing Frequency): M = 2.64, SD = 1.16, N = 357.
*p < .05. **p < .01.

Table 2
Multiple Regression Results

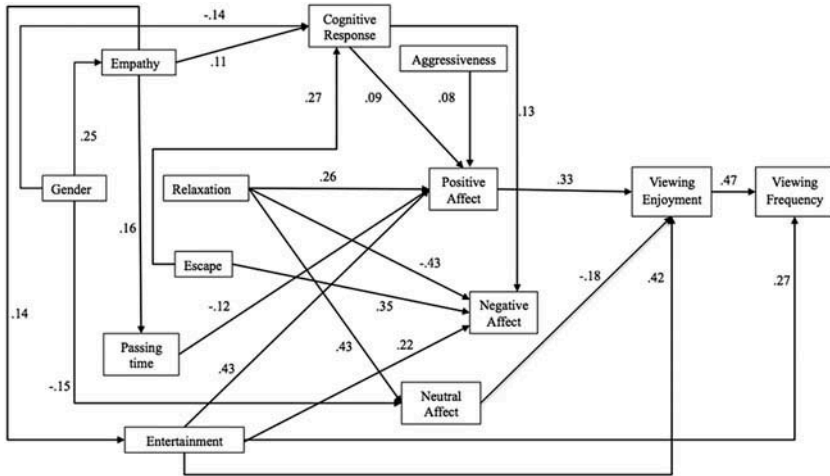
	Cognitive Involvement β	Negative Affect β	Positive Affect β	Neutral Affect β	Viewing Enjoyment β	Viewing Frequency β
Gender	-.12*	.00	-.05	-.18**	.00	.00
Aggressiveness	-	.03	.09*	-.01	.02	.02
Empathy	.13*	.04	-.04	-.06	-.01	-.06
Entertainment	-.06	.20*	.46**	.04	.41**	.24**
Escape	.28**	.34**	.02	-.03	-.06	.02
Passing time	-.05	.03	-.11*	.03	-.01	-.06
Relaxation	.07	-.43*	.24**	.42**	.10	.03
Cognitive involvement	-	.13*	.10*	-.02	.05	.01
Negative affect	-	-	-	-	.00	-.04
Positive affect	-	-	-	-	.31**	.01
Neutral affect	-	-	-	-	-.20*	.01
Viewing enjoyment	-	-	-	-	-	.44**
Final adjust R^2 :	.10	.20	.40	.23	.36	.35
<i>N</i> :	399	399	396	397	389	346
Sum of squares	335.00	369.23	385.12	330.40	364.63	458.25

Note. * $p < .05$. ** $p < .01$.

Research Questions

RQ₁ queries the relations between cognitive involvement and affective involvement. Regression results show that greater cognitive involvement was a significant predictor of a greater level of positive affective involvement ($\beta = .10$, $p < .05$) and negative affective involvement ($\beta = .13$, $p < .05$). Cognitive involvement was not found to be a significant predictor of neutral affective involvement. RQ_{2a}, RQ_{2b}, and RQ_{2c} investigate the relations between gender and (a) cognitive involvement, (b) affective involvement, and (c) viewing enjoyment, in that order. Results reveal that while male gender predicted greater cognitive involvement ($\beta = -.12$, $p < .05$) and more neutral affect ($\beta = -.18$, $p < .001$), gender was not a significant predictor of viewing enjoyment.

Figure 2
Path Modeling Results



Conceptual Model

A path analysis tested the proposed conceptual model (see Figure 2). Results show that several paths generated by the procedure were not statistically significant ($\chi^2 = 46.02$, $p = .052$, $CMIN/DF = 1.44$, $CFI = .99$, $TCI = .97$, $NFI = .97$, $RMSEA = .033$). These include the model paths leading from: 1) passing time and entertainment motivations to cognitive involvement and negative affect; 2) escape motivation to positive affect; 3) escape, passing time, and entertainment motivations to neutral affect; 4) aggressiveness to negative and neutral affect; 5) empathy to positive and negative affect; and 6) gender, cognitive involvement, and negative affect to enjoyment. After eliminating these paths, the revised model (see Figure 2) shows a very good fit, $\chi^2 = 55.85$, $p = .18$, $CMIN/DF = 1.19$, $CFI = .99$, $TCI = .99$, $NFI = .96$, $RMSEA = .02$. According to Figure 2, while female gender predicts greater empathy ($\beta = .25$), male gender predicts a stronger level of cognitive involvement ($\beta = -.14$) and neutral affect ($\beta = -.15$). Aggressive personality predicts greater positive affective involvement ($\beta = .08$). Empathy is a positive predictor of entertainment ($\beta = .14$) and passing-time ($\beta = .16$) motivation as well as a higher degree of cognitive involvement ($\beta = .11$).

Entertainment motivation is a significant predictor of greater viewing enjoyment ($\beta = .42$) and viewing frequency ($\beta = .27$) as well as stronger positive ($\beta = .43$) and negative affective involvement ($\beta = .22$). Escape motivation significantly predicts a stronger level of positive cognitive involvement ($\beta = .27$) and negative affective

involvement ($\beta = .35$). The motivation for passing time is a significant predictor of less positive affective involvement ($\beta = -.12$) and lower negative affective involvement ($\beta = -.12$). By comparison, relaxation motivation predicts both stronger positive affective ($\beta = .26$) and neutral affective involvement ($\beta = .43$), in addition to lower negative affective involvement ($\beta = -.43$).

Cognitive involvement was found to positively predict both positive affective ($\beta = .09$) and negative affective ($\beta = .13$) involvement. While positive affective involvement predicts more viewing enjoyment ($\beta = .33$), neutral affective involvement predicts less viewing involvement ($\beta = -.18$). Viewing enjoyment also positively predicts viewing frequency ($\beta = .47$).

By comparing the multiple regression statistics and the path model statistics reported above, it is clear that the statistical results associated with the parallel predictor and criterion variables are consistent with each other. Hence, the findings generated from testing the research hypotheses and research questions are also validated by the path model.

Discussion

The current study is among the first to examine the effects of personality traits, viewing motivations, audience involvement, and gender on the enjoyment and frequency of consuming horror content in an integrated conceptual framework. It also represents the first attempt to explore why viewers watch serial TV dramas with horror content and how they react to such content as well as what factors influence viewer enjoyment. A path model was also tested, which validated the proposed conceptual framework as well as the multiple regression results for the research hypotheses and research questions.

Overall, the results show that viewing motives have a significant influence on how viewers cognitively or affectively respond to serial TV drama with horror content, aside from directly or indirectly influencing their program enjoyment and viewing frequency. Personality traits also have a direct effect on cognitive or affective involvement, in addition to a viewing motivation. While negative affect is irrelevant to viewing enjoyment, cognitive involvement has an indirect effect on viewing enjoyment. Both positive affect and neutral affect are significant predictors of viewing enjoyment, but not negative affect. Viewing enjoyment in turn has a direct and positive effect on viewing frequency.

Specifically, findings indicate that aggressive personality is not related to cognitive involvement and is a positive but weak predictor of positive affect, which has a direct effect on viewing enjoyment and an indirect effect on viewing frequency. This suggests that more aggressive individuals may respond to the graphic horror content more positively without engaging in cognitive elaboration nor experiencing a negative emotional state. These findings hence provide the first evidence that links aggressiveness to positive affect for horror content exposure, while validating past

literature that indicates the positive relations between aggressiveness and violent media enjoyment (e.g., Hoffner, 2009).

More empathic individuals were found to be more cognitively engaged with these TV series with horror content, in addition to being more motivated to watch these programs for passing time and entertainment. As cognitive involvement has a direct effect on both negative and positive affect, it is likely that more empathic viewers may adopt a cognitive mitigation strategy to block their negative emotions via distracting themselves from the victimization and violence (e.g., Andrade & Cohen, 2007; Hoffner, 1995; Tamborini, 1996) in these programs. Hence, empathic individuals who wish to pass time and entertain themselves may mentally engage themselves with these TV dramas—by focusing on positive feelings and avoiding negative emotions about the content—to enjoy these programs.

In terms of viewing motives, only the motivation for escape is significantly linked to both positive cognitive engagement and negative affective involvement with watching the TV series. This suggests that when participants are motivated to escape from reality, they may be more immersed in the fictional content, while simultaneously experiencing negative affect elicited from the horror elements embedded in such content. As negative affect is unrelated to viewing enjoyment, participants may still obtain viewing enjoyment—through the indirect effect between escape motivation and viewing enjoyment—as mediated by cognitive involvement.

The relaxation viewing motive is identified as a predictor of a stronger positive and neutral affective state—as well as a lower negative affective state—associated with exposure to these TV series with horror content. It appears that participants who are motivated to watch these shows for relaxation may maintain greater neutrality and suppress their negative feelings toward the horror content, while they enjoy a positive emotional connection with the characters. These findings are particularly noteworthy, since they are the first empirical evidence that links a viewing motive to a neutral affect via exposure to media with horror content.

Participants with passing time viewing motivation reported a lower but positive affective response toward these serial dramas, without experiencing either negative or neutral emotions. This implies that when killing time is the objective for watching these TV series, viewers may respond with a more marginal but positive affective involvement to stay engaged and perhaps to avoid experiencing negative emotions. The entertainment motive, on the other hand, brings about both positive and negative emotional reactions toward these programs. Hence, participants who wish to be entertained by these serial TV dramas may also be more emotionally connected with these programs. Given that negative affect is irrelevant to viewing enjoyment, the positive emotional response may then still lead the audience to experience greater viewing enjoyment.

Combined, these results reveal a co-activation of positive and negative feelings, when the audience is exposed to adverse events such as those depicted in the horror media; these findings are hence similar to those reported for adolescent responses to horror film viewing (Johnston, 1995). They are also consistent with the emotional responses that are common to exposure to fictional TV dramas, which contain both fun and sad experiences with the content (e.g., Nabi et al., 2006). More noteworthy

is the finding related to neutral affective response, which is a conceptual dimension that has not been tested in past research on media with horror. As the relaxation viewing motivation is the only significant predictor of neutral affective response, this implies that viewers may also co-activate a detached emotional state—to mitigate the negative affect and maintain the positive affect—that they experience concurrently.

It is important to note that cognitive involvement is a significant predictor of both positive and negative affective response to serial TV dramas with horror content, since no existing research has explored these relations before. Hence, viewers who devote more mental energy to consume these serial dramas are also more likely to elicit stronger positive or negative emotions—toward the violence, fright, and suspense—that are common elements in the storyline of this type of programs. These findings both support and contradict Perse's (1998) study on general TV channel changing behavior, where more cognitive evaluation of a TV program preference is predictive of less positive emotions and more negative emotions. Future research may wish to examine these relations by contrasting actual viewing preferences and program genres (e.g., horror vs. crime drama).

Turning to viewing enjoyment of TV series with horror content, greater positive affect, lower neutral affect, and stronger entertainment motive each has a direct effect on viewing enjoyment. Viewing enjoyment and entertainment motive, in turn, positively predict viewing frequency. These findings thus provide the much needed empirical evidence that could conceptually differentiate viewing enjoyment from gratifications obtained, which is an under-studied and important conceptual distinction in measuring viewing satisfaction (Nabi et al., 2006). They also forward a set of unanticipated results, which demonstrate a direct effect from entertainment motive on viewing enjoyment—as well as an indirect effect from all viewing motives on viewing enjoyment—mediated through cognitive involvement, positive affect and/or neutral affect.

As negative affect is not linked to viewing enjoyment, this result contradicts Hoffner and Levine's findings (2005) on horror film enjoyment. While neutral affective state is inversely related to viewing enjoyment, this finding is also different from past research, which suggests that greater psychological detachment could help increase positive affect, reduce negative affect, and avoid fear to increase viewing enjoyment (Andrade & Cohen, 2007). Taken together, it seems that there may exist a fundamental difference between how the audience responds to TV series with horror content vs. horror films. That is, viewers of serial TV dramas may enjoy these programs through developing cognitive and emotional involvement with the characters, as the focus of these programs is on the relations between these characters and the challenge of their humanity (Wallenstein, 2014). By contrast, viewers of horror films may focus on the excitement and arousal elicited from the fright and gore (e.g., Zillmann, 1996); when their negative affect (e.g., fright) is tempered by emotional disengagement alongside positive affect (e.g., exhilaration) (Andrade & Cohen, 2007), their viewing enjoyment is also enhanced.

Lastly, gender is a significant predictor of cognitive involvement and neutral affect: the two concepts that have not been examined in past research on horror media

consumption. However, gender is not a significant predictor of enjoyment, which contradicts past studies that emphasize the importance of gender-role socialization (e.g., Zillmann & Weaver, 1996). Specifically, males are more cognitively involved with serial TV dramas featuring horror content than females; they also experience more neutral affect than females. These findings seem to suggest that while their greater mental engagement can lead to more positive and negative affect, male viewers may also depersonalize their response to horror (e.g., Andrade & Cohen, 2007) to maintain a more neutral state of calm and collectedness. Mundorf et al. (1989) speculate that an unsympathetic mindset and masculinity may be the reasons for this lack of negative emotional involvement with horror among males. Consistent with past research showing that females are more empathetic toward others than males (e.g., Mestre, Samper, Frías, & Tur, 2009), females were indeed found to express more empathy than males toward the characters presented in these programs (Cantor & Reilly, 1982).

Several study limitations should be noted. First, study results are primarily applicable to college students and young adults. Second, the affective involvement scale adopted for the study (Nowlis, 1965) may need further testing to determine whether a potential confound might exist between its three sub-scales. Third, the motivation and involvement measures were developed to examine participant response to the TV series included in the study in general. Assessing audience reactions to these TV series separately could potentially differentiate viewing motivations and audience involvement between selected programs. Lastly, the collection of self-reported data comes with known methodological weaknesses.

Conclusion

The current study suggests that viewing motivations are good predictors of cognitive and/or affective involvement. It also indicates that aggressive and empathic tendencies predict positive affective involvement and cognitive involvement, respectively. Gender was found to have a direct effect on empathy as well as cognitive and affective involvement. Whereas females show greater empathy, males are more cognitively engaged but emotionally disengaged with the program content. Findings further demonstrate that positive and neutral affective involvement are predictors of viewing enjoyment but not negative affective involvement. Viewing enjoyment was identified as a strong predictor of viewing frequency.

Previous research has scarcely examined the effects of the relations among—1) the U&G framework and audience involvement, 2) aggressiveness trait and audience involvement, and 3) gender and cognitive involvement—on horror media exposure. The current findings hence provide a basis for validating the influence of gender, personality traits, viewing gratifications, and audience involvement on exposure to TV series with horror content. More work could also explore whether the current conceptual framework can help differentiate audience preference and enjoyment of sub-genres—such as soap opera (e.g., *The Vampire Diaries*) and anthology (e.g., *The American Horror Story*)—of these serial TV dramas.

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Knowledge Versus Beliefs: How Knowledge and Beliefs Mediate The Influence of Likeminded Media use on Political Polarization and Participation

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Knowledge Versus Beliefs: How Knowledge and Beliefs Mediate The Influence of Likeminded Media use on Political Polarization and Participation

Yonghwan Kim

Using cross-sectional data from the 2008 National Annenberg Election Survey, this study tests 2 models that explicate the relationship between politically likeminded media use and political polarization and participation. The knowledge model suggests that the effects of exposure to likeminded media on individuals' attitudinal polarization and political participation are mediated by knowledge of candidate issue stances. The belief model proposes that likeminded media use indirectly influences political polarization and participation via political beliefs. The results provide evidence that individuals' beliefs mediate the influence of likeminded media consumption on attitudinal polarization and participation, but there was no support for the knowledge model. These findings indicate that individuals who consume politically likeminded news tend to develop polarized attitudes and are motivated to participate in political activities by forming biased beliefs associated with candidates rather than by gaining factual issue knowledge.

People tend to seek out information that is congruent with their preexisting attitudes and beliefs. Particularly in the context of news and politics, individuals prefer to consume news media that match their political orientations (Klapper, 1960; Sears & Freedman, 1967; Zillmann & Bryant, 1985).

Given this tendency, there have been concerns about attitude extremity or polarization among citizens when they seek out perspectives they prefer (Jonas, Diehl, & Bromer, 1997; Lavine, Borgida, & Sullivan, 2000; Stroud, 2010). Political polarization may endanger democracy "by obscuring the substance of policy arguments, unhinging the implementation of long-standing policies, and increasing the resistance to any change" (Kim, Wang, Gotlieb, Gabay, & Edgerly, 2013, p. 389). On the other hand, likeminded media use could increase citizens' levels of political

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participation (Kim, Kim, & Wang, 2016; Mutz, 2002a; Stroud, 2011). While exposure to conflicting perspectives, or cross-pressures, may lower citizens' campaign interest and participation in politics, exposure to information that is similar to one's own political views increases political participation by increasing interest in politics or arousing individuals' emotions (Berelson, Lazarsfeld, & McPhee, 1954; Dilliplane, 2011; Kim et al., 2016; Lazarsfeld, Berelson, & Gaudet, 1944; Mutz, 2002a; Stroud, 2011). Although there has been increasing attention to the consequences of politically likeminded media consumption such as attitudinal polarization and political participation, little research has been devoted to understanding the underlying mechanisms of this process.

In order to advance the current literature on the effects of politically likeminded media use, this paper asks how exposure to likeminded news influences polarization and participation. One may raise important questions about the relationships among likeminded media use, political polarization, and political participation. Does exposure to likeminded media facilitate citizens' engagement in public affairs by leading individuals to develop more polarized political attitudes? Although the direct influence of politically likeminded news consumption on attitudinal polarization and political participation has been examined separately in prior literature, there is little research on whether likeminded media use may influence political engagement indirectly through the polarizing of attitudes. More importantly, even less attention has been paid to identifying the mediating mechanisms of how exposure to consonant media influences attitudinal polarization and political participation.

The aim of this study is to investigate mediating variables in the relationships among likeminded media use, attitudinal polarization, and political participation. The current study explores political knowledge and beliefs as potential mediators. Given that individuals' knowledge and beliefs play an important role in influencing their attitude formation and political behaviors, such as making a decision based on their knowledge or beliefs (Caprara & Zimbardo, 2004; Delli Carpini & Keeter, 1996; Simon, 1985), two models have been proposed to examine whether and how citizens' political knowledge (knowledge model) and beliefs (belief model) mediate the effects of exposure to pro-attitudinal media on both political polarization and participation.

Consequences of Likeminded Media Use: Political Polarization and Participation

Individuals favor information that is supportive of their preexisting views and values. This tendency is referred to as selective exposure (Festinger, 1957; Klapper, 1960). Selective exposure has been conceptualized and examined in many situations, including exposure to entertainment media content versus political information (Prior, 2005, 2007), general news exposure (Knobloch, Carpentier, & Zillmann, 2003; Zillmann, Chen, Knobloch, & Callison, 2004), exposure to gender-typed

magazines (Knobloch-Westerwick & Hoplamazian, 2012), and health information (Pease, Brannon, & Pilling, 2006).

This study focuses on exposure to politically likeminded media. In news and politics, literature has demonstrated that people tend to expose themselves to information that is similar to their preexisting viewpoints because they want to reinforce their political predispositions rather than change them. Researchers have examined whether and to what extent citizens consume politically likeminded media and have consistently shown that individuals are likely to expose themselves to information that is consistent with their existing views, especially those related to their political ideology and partisanship (Iyengar & Hahn, 2009; Lazarsfeld et al., 1944; Stroud, 2010).¹

A line of research on the antecedents of politically slanted media use demonstrates that partisan media use is influenced by individuals' political predispositions and characteristics, including motivations, political leanings or partisanship, and personal issue importance. For example, people with higher directional goal motivations may seek congruent information while individuals with higher accuracy goal motivations tend to expose themselves to more diverse information (Kim, 2007). Individuals whose favored party is likely to win an election prefer political messages consistent with their political leaning (Knobloch-Westerwick & Kleinman, 2012).

Another line of research which the current study aims to extend has examined the consequences of exposures to likeminded news media. Recent studies have demonstrated that exposure to likeminded information is associated with more polarized attitudes (Lavine et al., 2000; Stroud, 2010). Stroud, for example, found that citizens' congenial media consumption was associated with higher levels of polarized attitudes toward political candidates. Other studies have also documented a relationship between slanted media exposure and polarization (Druckman & Parkin, 2005; Jones, 2002). In addition, experimental studies have shown that seeking out confirming information leads to attitude polarization about controversial issues (Taber & Lodge, 2006). In sum, there are enough empirical projects and theoretical rationales to predict a link between likeminded media consumption and attitudinal polarization.

Another consequence of politically consonant media use on which recent literature has focused is its influence on citizens' participation in politics and public affairs. Although studies on the relationship between news media use and participation have focused mainly on general media consumption, how the slant of the news source (i.e., whether it is conservative or liberal) influences citizens' political participation has received little attention (Dilliplane, 2011). Acknowledging this limited scholarly attention, recent studies on the influence of likeminded media use on political engagement have started to accumulate. For example, consumption of political talk radio and partisan podcasts has been found to have a positive influence on political participation among politically likeminded listeners (Jamieson & Cappella, 2008; Kim et al., 2016). Stroud (2011) provides evidence that individuals' likeminded media use (as an index with four types of media—TV news, talk radio, newspapers, and Web sites) increases their participation in politics by providing

explicit instructions and mobilizing information. Dilliplane (2011) also documents that exposure to ideologically consonant media is associated with increased levels of political participation.

As such, recent literature has started to examine the consequences of politically likeminded media use in the democratic process and has demonstrated that like-minded media consumption may lead to increased levels of political participation and political polarization. Despite scholarly attention to the direct effect of like-minded media use on political polarization and participation, not much is known about the mechanisms for this association—that is, what mediates the relationships between likeminded media use and political polarization and between likeminded media use and political participation? Tsftati and Chotiner (2016) are among the few who have examined these mediating mechanisms. They found that the effect of congruent political information on polarization is mediated through opinion climate perceptions and demonstrated that the more individuals are exposed to congruent media, the more they perceive the climate of opinion as consonant with their ideology, which, in turn, polarizes their attitudes.

Identifying mediators of the relationships among politically likeminded media use, political polarization, and participation is important to better understand the underlying process by which individuals' consonant media use develops attitudinal polarization and motivates them to engage in political activities. In this way, this study will contribute to further understanding about the mechanisms by which politically congruent media use is associated with attitudinal polarization and political participation. The current research examines political knowledge and beliefs as potential mediators. The two potential mediating mechanisms (i.e., knowledge model and belief model) are explained in the following sections.

Underlying Mechanisms: Knowledge vs. Belief

The *knowledge model* states that likeminded media use indirectly affects polarized attitudes toward candidates and political participation by increasing knowledge about candidate issue stances. In the *belief model*, likeminded media consumption is proposed to indirectly affect polarized attitudes and political participation by forming political beliefs associated with candidates.

The Knowledge Model

Democratic citizens are informed citizens. They are supposed to know what the issues are, what's going on in society, and what the relevant facts are (Berelson et al., 1954). Citizens should know the facts because this information facilitates their evaluations of public policies and debates about public affairs. People use political information to inform their attitudes and political preferences (Delli Carpini & Keeter, 1996). With knowledge, citizens can make better decisions that represent their

preferences and put a check on whether the government is acting for the public good (Bartels, 1996; Luskin, 1990).

Exploring how likeminded media use is associated with citizens' political knowledge is important to understanding how exposure to politically consonant media influences attitudinal polarization and participation. Only recently have scholars started to examine the extent to which likeminded media use is linked to knowledge gain and, in turn, whether knowledge mediates the effect of likeminded media use on polarization. In a promising first attempt at examining this relationship, Dvir Gvirsman (2014) found that knowledge of reinforcing arguments mediated the relationship between partisan media use and attitude polarization. Individuals who consumed ideologically slanted media (i.e., right-wing and left-wing media exposure) formed more extreme and cohesive attitudes by increasing their knowledge of consonant arguments.

Dvir Gvirsman's (2014) findings shed light on the mechanisms of how likeminded media use is associated with attitude polarization by looking at the mediating role of knowledge. However, there is a clear need for further empirical investigation to better understand the mechanisms by which likeminded media use is associated with attitudinal polarization and political participation. It is important to note that the measure of knowledge in that study was the degree of familiarity with related arguments. Dvir Gvirsman measured participants' familiarity with reinforcing and challenging arguments regarding Israeli policy in the West Bank and Gaza Strip. While the degree of self-rated familiarity with related arguments is an important criterion for learning (Cappella, Price, & Nir, 2002), it is by no means the only one. Factual knowledge has important implications for the formation of opinions and attitudes as well as the ability to engage in political activities (Chaffee, Zhao, & Leshner, 1994; Delli Carpini & Keeter, 1996, 2000; Jung, Kim, & Gil De Zúñiga, 2011).

Factual knowledge is a knowledge of assertions which are either true or false, and it is concerned with facts rather than giving personal interpretations, such as citizens' knowledge of the candidates' policy positions (see e.g., Brians & Wattenberg, 1996; Delli Carpini & Keeter, 2000). As democratic theories require that citizens are informed about public issues and a wide range of perspectives before making decisions (Delli Carpini & Keeter, 1996), political factual knowledge (i.e., issue knowledge) therefore should be included as an important consideration. This is particularly true for the present study in which attitudinal polarization is defined as attitudes toward political candidates to see whether likeminded media use is associated with candidates' issue stance knowledge, and furthermore, whether issue knowledge is related to polarized attitudes toward candidates. Little is known about whether ideologically slanted media use is related to factual issue knowledge and in turn whether issue knowledge influences attitudinal polarization. Further, Dvir Gvirsman (2014) only focused on attitudinal polarization and did not look at mechanisms for political participation, which limits the understanding of how likeminded media consumption relates to citizens' participatory behavior. Our understanding of the mechanism underlying the relationship between politically likeminded media consumption, attitudinal polarization, and political participation is still very limited. This study advances the current literature by investigating a potential mediating role of factual

issue knowledge in which politically slanted media use influences citizens' polarized attitudes and political activities.

Different relationships between likeminded media use and factual political knowledge are possible. Through politically likeminded media use, one could learn candidates' issue stances, and by doing so, become prepared to evaluate the candidates, form attitudes about the candidates, and choose a candidate. This may be because when individuals gain knowledge about candidates' issue stances, the information may be persuasive and, as demonstrated by Isenberg (1986), may then lead to polarized attitudes. Greater issue knowledge and higher levels of attitudinal polarization, in turn, should lead to political participation. Like any news media, politically slanted media could be an important source of information about politics and public affairs as they cover both the endorsed candidate's and the other candidates' issues and policies (Niven, 2001). Thus, it is possible that citizens' exposure to likeminded media could lead to improved candidate issue knowledge. If likeminded media outlets provide citizens with information about candidates' issue policies and citizens gain knowledge about those facts, political knowledge could mediate the influence of such media use on political polarization and participation.

Yet it also is possible that likeminded media use may not be related to political knowledge. If people disproportionately consume politically likeminded news media, they may *not* reap the benefits of exposure to more diverse views (e.g., more informed and tolerant attitudes; Dilliplane, 2011; Mutz, 2002b). If citizens mainly rely on politically likeminded media outlets which may have unbalanced information about the candidates (e.g., less coverage about the opposing candidate's issues and policies), they may have fewer chances of learning about diverse issues and challenging viewpoints. Thus one concern may be that exposure to likeminded media would not have a significant influence on individuals' political knowledge because different viewpoints are insufficiently covered. This can be the case especially when partisan media report biased points of view in favor of one party and political viewpoint while focusing on the opposing candidate's image or scandals rather than reporting the news about policies and issues (Baum & Groeling, 2008; Levendusky, 2013).

In sum, based on the literature reviewed above, it is unclear whether exposure to likeminded media is associated with issue knowledge, and furthermore whether issue knowledge mediates the effect of likeminded media use on political polarization and participation. Therefore, a research question is posed regarding the potential mediating role of political knowledge:

RQ₁: Does issue knowledge mediate the relationship between likeminded media use and political polarization and participation?

The Belief Model

Research on beliefs provides a basis for examining the potential mediating role of political beliefs in the relationships among likeminded media use, political polarization,

and participation. Whereas knowledge is concerned with facts rather than giving personal interpretations or opinions, beliefs are stated opinions or ideas without corroborating proof (Delli Carpini & Keeter, 1996; Hindman, 2012; Zaller, 1992). Beliefs are unfalsifiable statements, which may or may not be “true” or “correct” and are formed based on supposition or even wishful thinking, meaning that there is no consensus about a correct answer upon which to make a judgment (Jedinger & Mader, 2015; Veenstra, Hossain, & Lyons, 2014). Although statements of both knowledge and beliefs are “intrinsically cognitive processes in that each involves an individuals’ claim regarding reality,” beliefs are “a subjective proposition about the attributes of some aspect of reality” (Hindman, 2012, p. 590). Beliefs have been accorded an important role in the social sciences and social psychology because of their influence on individuals’ attitude and opinion formation and social and political behavior (Converse, 1964). In particular, scholars have examined how citizens form beliefs about politics and contested issues or events (Hindman, 2009).

Hindman’s (2009) belief gap hypothesis reconsiders and extends the knowledge gap hypothesis by proposing that individuals’ political orientation (i.e., political ideology and partisan identification) may play an important role in the distribution of beliefs about politically contested issues. This hypothesis suggests that political ideology is a better predictor of politically disputed beliefs and opinions than education is. Using five national surveys, Hindman examined people’s beliefs regarding climate change and found that political ideology was significantly associated with beliefs about the subject. Specifically, liberals were more likely to believe that there is solid evidence that the average temperature on earth has been getting warmer over the past few decades than conservatives were. Furthermore, those who are liberal were more likely to attribute global warming to human activity than conservative individuals were. Belief gaps between political and social groups have been identified on other issues such as the U.S. health care reform bill (Hindman, 2012) and contested claims about U.S. president Barack Obama such as Obama’s birthplace and religion (Veenstra et al., 2014), with political ideology playing an important role in the distribution of politically disputed beliefs.

The process of social identification may explain the belief gaps about contested issues between social/political groups (Price, 1988, 1989). People tend to have more positive attitudes toward ingroup members than outgroup members and be more trusting of ingroup members than members of other groups (Otten & Moskowitz, 2000). Research demonstrates that this social categorization process influences people’s attitudes and behaviors through activating a biased information process (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). It may be the case that politically likeminded media use can influence individuals’ political beliefs through a categorization process by which people perceive their favored candidate as a member of an ingroup and the opposing candidate as an outgroup member when they are exposed to likeminded media outlets.

Once political beliefs have been activated from exposure to partisan media outlets, they may play an important role in affecting citizens’ attitude formation and political behaviors because they serve as a reference cue for individuals when they

process information. Individuals with an enormous amount of information to process from various media sources can use cognitive heuristics or cues as efficient mental shortcuts for organizing information (Caprara & Zimbardo, 2004; Simon, 1985). When citizens make judgments associated with politics, such as evaluating candidates, casting a ballot, talking about their opinions, or engaging in campaigns, many use intuitive “shortcuts” that are salient in their mind rather than paying too much attention to information when arriving at a decision (Downs, 1957; Zaller, 1992). Citizens use many kinds of heuristics to help make sense of their environments such as politics or social life (e.g., Brady & Sniderman, 1985; Sniderman, Brody, & Tetlock, 1991). Lau and Redlawsk (2001) explain that common cognitive heuristics citizens rely on include political ideology, party affiliation, and candidate appearance, which are important cues available in elections, to help them make a political decision (see also Conover & Feldman, 1982).

Weeks and Garrett (2014) demonstrated that individuals’ political beliefs had a significant influence on their vote choice. Specifically, believing rumors about an opposed candidate influences the likelihood of voting for the preferred candidate. For instance, Republicans were significantly more likely than non-Republicans to believe in negative rumors about Barack Obama (e.g., he is a Muslim or he does not qualify as a natural-born citizen of the United States), and these beliefs in turn decreased the likelihood of voting for Obama and increased the likelihood of voting for Republican candidate John McCain. Another study showed that citizens’ perceptions related to candidates’ demographic characteristics or appearance (e.g., race, gender, and age) affected their judgments of the candidates, specifically their evaluations of and inferences about the candidates (Riggle, Ottati, Wyer, Kuklinski, & Schwarz, 1992). Overall, literature demonstrates that citizens use their political beliefs to evaluate candidates and to make political decisions.

Based on the literature reviewed above, it is reasonable to expect that people may tend to accept positive perceptions of the favored candidate and negative perceptions of the opposed candidate when they are exposed to congenial media coverage through a categorization process by which they are more trusting of information from ingroup than outgroup members. Therefore, individuals would tend to form political beliefs and use such beliefs as heuristic cues that they receive from the media, evaluate the candidates by using those cues, and consequently form more polarized attitudes toward the candidates and participate in politics.

The 2008 U.S. presidential election provided an opportunity to study the role of beliefs in political polarization and participation given that McCain’s age and Obama’s race were prominent issues throughout the campaign (Dwyer, Stevens, Sullivan, & Allen, 2009; Kenski, Hardy, & Jamieson, 2010). In particular, in the context of the 2008 election, research demonstrated that racial perceptions can influence citizens’ attitudes and behaviors. Using three surveys of representative samples of Americans, Payne et al. (2010) provided evidence that citizens higher in racial stereotypical perceptions were less likely to vote for Barack Obama and more likely to vote for John McCain or a third-party candidate. Knowles, Lowery, and Schaumberg (2010) explored how individuals’ anti-Black perceptions were related to

their voting behavior, attitudes toward Obama, and attitudes toward Obama's health care reform plan. Their findings also supported the notion that racial perception is one factor that drove opposition to Obama and his policies. They found that individuals high in anti-Black attitudes were reluctant to vote for Obama and tended to oppose Obama and his health care reform plan. These studies suggest that, beyond the significant relationship between exposure to politically likeminded media use and political beliefs or perceptions, such beliefs, in turn, could influence attitudinal polarization and political participation. Despite these considerations, given the lack of empirical evidence to propose specific directional hypotheses regarding the potential mediating role of political beliefs, the overall process—whether and how beliefs derived from likeminded media use relate to citizens' attitudinal polarization and participation—is not clear. This study thus proposes the following research question:

RQ2: Do political beliefs mediate the relationship between likeminded media use and political polarization and participation?

Method

Data

The data for this research come from the 2008 National Annenberg Election Survey (NAES), a rolling cross-sectional study based on surveys administered to a random sample of Americans throughout the 2008 U.S. presidential campaign, from December 17, 2007, to November 3, 2008. The response rate was 23%. In order to better capture individuals' polarized attitudes, data from the very beginning of the campaign period may not be appropriate because people are less likely to have formed their opinions and attitudes toward the candidates. Given that analyzing data after the primary and before the presidential election seems more appropriate, data collected between these time periods will be used—more specifically, data between May 23 and November 3, 2008 for the knowledge model; and data between June 9 and November 3, 2008 for the belief model. Note that the different time periods for the knowledge and beliefs models are due to availability of the questionnaire items asked.

Measures

Political Polarization. Polarization is operationalized in terms of attitudes toward candidates based on previous studies (Fiorina & Abrams, 2008; Kim et al., 2013; Stroud, 2010). Respondents were asked, "For the following person, please tell me if your opinion is favorable or unfavorable using a scale from 0 to 10. Zero means very unfavorable, and 10 means very favorable. Five means you do not feel favorable or unfavorable toward that person. Of course you can use any number between

0 and 10." Respondents rated their attitudes toward both McCain and Obama on this 11-point scale. Polarization was measured by taking the absolute value of the difference between ratings of McCain and Obama for each respondent (range = 0 to 10, $M = 3.67$, $SD = 2.87$); thus, higher values indicate more polarized political attitudes.²

Political Participation. Respondents were asked whether they had engaged in the following activities during the 2008 presidential campaign: talked to any people and tried to show them why they should vote for or against one of the presidential candidates; given money to any of the presidential candidates; done any work for one of the presidential candidates; gone to any political meetings, rallies, speeches, dinners, or things like that in support of a particular presidential candidate; worn a presidential campaign button, put a campaign sticker on their car, or placed a sign in their window or in front of their house. Responses to each item were added into a single index ($M = .47$, $SD = .79$).

Issue Knowledge. The survey dataset has items measuring respondents' knowledge about the issue positions of presidential candidates—McCain and Obama—across various issues (e.g., tax cuts and health care). Each of the nine items was coded as 1 if the respondent provided the correct answer and as 0 if the respondent incorrectly answered the question, did not know the answer, or refused to answer the question. The nine items were added into an index of issue knowledge ($M = 5.70$, $SD = 2.12$).

Beliefs. Based on previous research (Hindman, 2012; Kenski et al., 2010; Veenstra et al., 2014), two indicators of beliefs associated with candidates' age and race were measured. Again, beliefs in this study are unfalsifiable statements, which may or may not be true and are formed based on supposition or even wishful thinking, meaning that there is no consensus about a correct answer upon which to make a judgment (Jedinger & Mader, 2015; Veenstra et al., 2014). Respondents were asked to indicate whether they thought John McCain was too old to be president and whether they think the United States is ready to elect a president who is Black. Both items were coded as dichotomous variables—that is, "yes" was coded "1" and "no" was coded "0." Almost 30% of the respondents (28.9%) perceived that McCain was too old to be president, while 83.7% of the participants reported that they thought the United States is ready to elect a Black president. Although the measurement of beliefs has not been subject to psychometric validity testing, previous belief gap research that simply asked respondents' perceptions about issues or candidates suggests that it has face validity as an indicator of beliefs about candidates and the U.S. electorate (see Hindman, 2012).

Likeminded Media Use. Likeminded media use refers to consumption of media outlets that are perceived to match respondents' political ideology—that is, for example, conservatives' use of media favoring a Republican candidate. In the

2008 NAES, respondents were asked about four types of news media use (i.e., TV news, talk radio programs, newspapers, and Internet) and then asked to report the political leanings of the media outlets they used. For instance, for the Internet, the survey asked respondents who used the Internet for campaign information in the past week: "In the past week, where did you get most of your information about the 2008 presidential campaign online?" and "Which presidential candidate do you think [online source named by respondent] favors during the campaign, or don't you think [the source] favors any candidate?" Similar questions were asked for other types of media outlets.

For each media type (e.g., TV, talk radio program, newspapers, and Internet), two dichotomous variables were created: one for using media outlets favoring the Republican candidate, and one for using media outlets favoring the Democratic candidate. Two indices of media exposure were created from these four sets of dichotomous variables. The first index, conservative media use, was created by summing each dichotomous media use item: watching TV programs, listening to talk radio programs, reading newspapers, and using Internet sites seen as favoring the Republican candidate. The second index, liberal media use, was also created by summing the use of each of four media types favoring the Democratic candidate. These two indices of media exposure were operationalized as conservative media use and liberal media use, respectively. Because the items represent counts of media outlet usages and not underlying concepts, measures of internal consistency were not necessary (see Eveland & Hively, 2009; Garrett, 2009; Hindman, 2012). Matching these two indices (i.e., conservative media use and liberal media use) with respondents' political ideology, exposure to likeminded media is defined as media use corresponding with respondents' political leanings—that is, conservatives use conservative media ($M = .31$, $SD = .59$) and liberals use liberal media ($M = .62$, $SD = .80$). Respondents' political ideology was used to identify conservatives and liberals.

Control Variables. The respondent's demographic variables were included as control variables in the analyses: age ($M = 53.2$, $SD = 16.0$), sex (57.2% female), education ($Mdn =$ Associate's or two-year college degree), income ($Mdn =$ \$50,000 to less than \$75,000 of total annual household income), and race (14.4% non-White). Political ideology (14.7% very conservative; 25.5% conservative; 33.0% moderate; 18.7% liberal, and 8.0% very liberal), political efficacy (range = 1–5, $M = 2.78$, $SD = 1.53$), campaign interest (range = 1–4, $M = 2.13$, $SD = 1.22$), general political knowledge (range = 0–4, $M = 2.13$, $SD = 1.22$),³ and news media use (days in past week, TV news ($M = 5.47$, $SD = 2.46$), political talk radio ($M = 1.72$, $SD = 2.57$), newspaper ($M = 2.91$, $SD = 3.02$), and online news ($M = 2.93$, $SD = 3.03$)) were also included. Because the time of interview in the rolling cross-sectional data is a relevant factor in the proposed models, it is also controlled. The time of interview was recoded by month: survey answers collected in December, 2007 were coded as "1," January, 2008 as "2," and so on to November, 2008 as "12". In addition, although the impact of cross-cutting exposure or non-likeminded media use is not the focus of this study, this variable is included in the analyses to

sort out the effects of such media use on variables of interest (see e.g., Mutz, 2002b; Wojcieszak, Bimber, Feldman, & Stroud, 2015). Non-likeminded or dissonant media use is defined as media use contrasting with respondents' political leanings—that is, conservatives using liberal media ($M = .37$, $SD = .62$) and liberals using conservative media ($M = .51$, $SD = .72$).

Statistical Analysis. To test the research questions, path analyses were employed. The analytic strategy employed here is to have separate path models for conservatives and liberals in order to operationalize likeminded media use (i.e., conservatives use conservative media outlets and liberals use liberal media outlets) as an independent variable in each model. In particular, given that the two beliefs examined here are associated with the candidates' characteristics, which is expected to show different directions of beliefs between conservatives and liberals, this study opts to use separate path models for a straightforward analytical purpose. The respondents are separated into conservatives and liberals using the political ideology measure described above. Only those who identified as either conservatives or liberals are included; moderates are excluded from the analysis because it was not possible to classify ideological media outlets as likeminded media exposure for them (see e.g., Garrett et al., 2014).

Results

The Knowledge Model

In order to test the potential mediating role of issue knowledge (RQ_1)—whether likeminded media use indirectly influences political polarization and participation through knowledge about the candidates' issue positions—two path models were tested: one for conservatives and one for liberals.

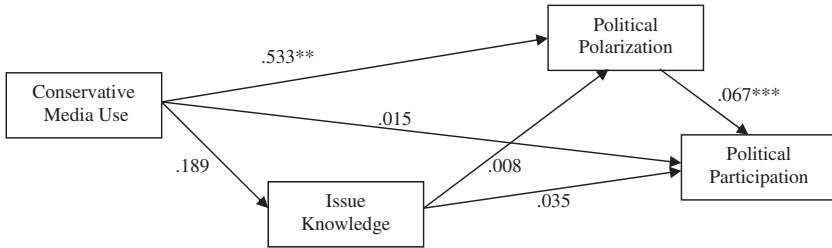
Path analyses provide no evidence that the relationship between exposure to likeminded media and political polarization and participation is mediated by citizens' issue knowledge about candidates. Figure 1 shows the results of the path model for the mediating role of issue knowledge for conservatives.⁴

Conservative likeminded media use had no significant influence on issue knowledge ($b = .189$, $p = n.s.$). Thus, issue knowledge does not mediate the relationship between conservative media use and political polarization and participation in this case. Indeed, the Mplus estimates of indirect effects confirm that issue knowledge does not mediate the relationships between likeminded media use and political polarization and participation.

A similar pattern of results emerged in the liberal likeminded media use context. Results of the path analysis examining the mediating role of candidate issue knowledge for liberals are shown in Figure 2.

Results show that there is no significant relationship between liberal likeminded media use and issue knowledge ($b = .026$, $p = n.s.$), suggesting that there is no

Figure 1
Path Model of Mediating Role of Issue Knowledge for Conservatives

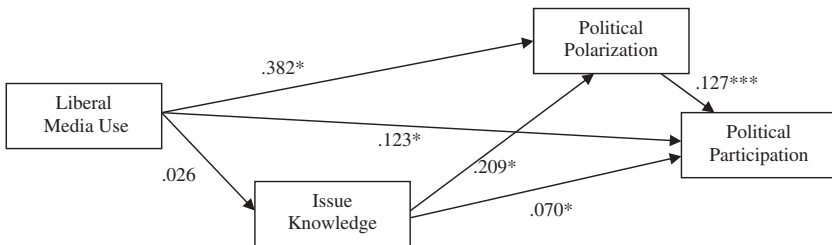


Note. The variables included in this model accounted for 15.7% of the variance in issue knowledge, 8.4% in polarization, and 15.7% in political participation. $N = 472$. ** $p < .01$; *** $p < .001$.

evidence that issue knowledge mediates the associations between exposure to like-minded media and political polarization and participation. The indirect influence of likeminded media consumption on political polarization and participation through issue knowledge is not significant.

In sum, path analyses demonstrate that there is no evidence that the relationships between likeminded media use and political polarization and participation are mediated by citizens' issue knowledge about candidates. There is no support for the knowledge model.

Figure 2
Path Model of Mediating Role of Issue Knowledge for Liberals



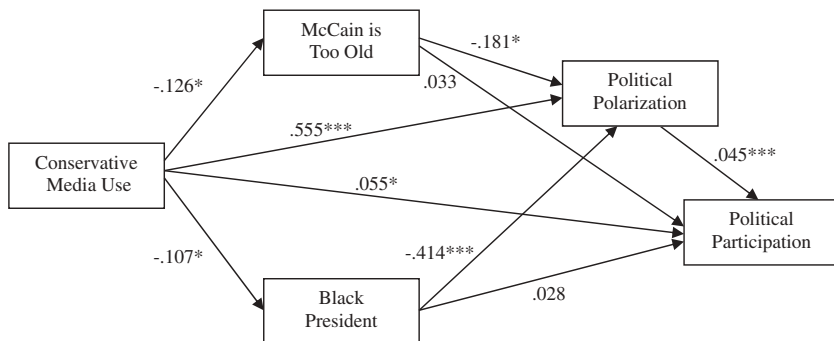
Note. The variables in this model accounted for 35.8% of the variance in issue knowledge, 26.5% in political polarization, and 27.9% in political participation. $N = 267$. * $p < .10$; *** $p < .001$.

The Belief Model

To test a model of beliefs, a mediating role of two types of political beliefs (i.e., McCain's age and the potential for a Black president) was proposed. Two path models were tested, one each for conservatives and liberals. Figure 3 presents a model in which conservatives' likeminded media use influences their beliefs about the candidates, and these perceptions mediate the impact of conservative media use on political polarization and participation.

Conservatives' exposure to likeminded media had a negative relationship with both perceptions about McCain's age and the readiness for a Black president in the United States. That is, conservatives who consume more conservative media are more likely to perceive that McCain is *not* too old to be president ($b = -.126, p < .05$) and that the United States is *not* ready to elect a Black president ($b = -.107, p < .05$). More importantly, the results in Table 1 show that conservatives' likeminded media use indirectly influences attitudinal polarization and political participation via perceptions of Black presidency with an indirect effect of .002 at a significance level of .05. That is, conservatives' exposure to conservative media outlets influenced beliefs about a Black president, which, in turn, influenced attitudinal polarization, which ultimately is linked to increased levels of political participation. On the other hand, the indirect effects of conservatives' likeminded media use on participation through beliefs about McCain's age and political polarization were not significant.

Figure 3
Path Model of Mediating Role of Belief for Conservatives



Note. The variables included in this model accounted for 11.6% of the variance in belief about McCain's age, 7.6% in Black presidency, 13.6% in political polarization, and 14.0% in political participation. Goodness of fit: $\chi^2 = 2.756$ ($df = 1, p = .096$), RMSEA = .027, CFI = .998, TLI = .833. $N = 2,329$. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 1
Direct and Indirect Effects of Structural Equation Model of Belief for Conservatives

				B
Cons. media	→	Polarization		.555***
Cons. media	→	MC's age	→ Polarization	.023 [†]
Cons. media	→	Black pres.	→ Polarization	.044*
Cons. media	→	Participation		.055*
Cons. media	→	MC's age	→ Participation	-.004
Cons. media	→	Black pres.	→ Participation	-.003
Cons. media	→	Polarization	→ Participation	.025***
Cons. media	→	MC's age	→ Polarization → Participation	.001 [†]
Cons. media	→	Black pres.	→ Polarization → Participation	.002*

Note. Table reports unstandardized direct and indirect path estimates.

[†] $p < .10$; * $p \leq .05$; ** $p < .01$; *** $p < .001$.

Figure 4 presents the results of the belief model for liberals. Results show a significant positive relationship between liberals' likeminded media use and beliefs about McCain's age, which means that liberals who consume liberal media more often were likely to perceive that McCain is too old to be president ($b = .139$, $p < .001$). However, although there was a positive relationship, the influence of liberals' exposure to likeminded media on perceptions of a Black president did not reach statistical significance ($b = .072$, $p = n.s.$).

With regard to the indirect effects of liberals' exposure to likeminded media on political participation, as Table 2 presents, liberals' exposure to liberal media outlets indirectly influences political participation through beliefs about McCain's age and

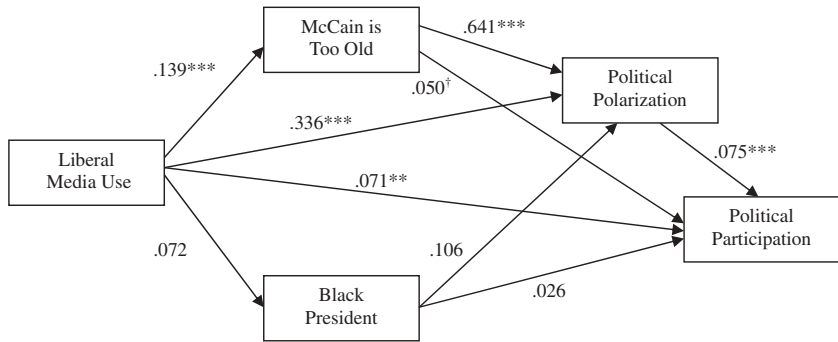
Table 2
Direct and Indirect Effects of Structural Equation Model of Belief for Liberals

				B
Lib. media	→	Polarization		.354***
Lib. media	→	MC's age	→ Polarization	.091**
Lib. media	→	Black pres.	→ Polarization	.011
Lib. media	→	Participation		.065*
Lib. media	→	MC's age	→ Participation	.007
Lib. media	→	Black pres.	→ Participation	.002
Lib. media	→	Polarization	→ Participation	.026***
Lib. media	→	MC's age	→ Polarization → Participation	.007**
Lib. media	→	Black pres.	→ Polarization → Participation	.001

Note. Table reports unstandardized direct and indirect path estimates.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Figure 4
Path Model of Mediating Role of Belief for Liberals



Note. The variables included in this model accounted for 10.4% of the variance in belief about McCain's age, 9.5% in Black presidency in U.S., 21.4% in political polarization, and 20.3% in political participation. Goodness of fit: $\chi^2 = 1.394$ ($df = 1$, $p = .237$), RMSEA = .015, CFI = .999, TLI = .959. $N = 1,677$. $^\dagger p < .10$; $**p < .01$; $***p < .001$.

polarization with an indirect effect of .007 at a significance level of .01. In other words, liberals' likeminded media use influences their beliefs about McCain's age, which, in turn, influences attitudinal polarization, which consequently contributes to increased levels of political participation. However, the indirect effects of liberals' likeminded media use on political participation via beliefs about a Black president in the U.S. and political polarization are not significant.

Discussion

This article analyzed the mechanisms of political polarization and participation derived from likeminded media consumption. Given that little is known about how and why politically likeminded media use leads to attitudinal polarization and participation, this research proposed and empirically examined two mechanisms (i.e., political issue knowledge and beliefs) by which citizens' exposure to like-minded media could lead to attitudinal polarization and political participation.

First, the knowledge model examined whether likeminded media use is associated with individuals' campaign issue knowledge and whether this issue knowledge, in turn, influences attitudinal polarization and political participation. Although there are concerns that likeminded media consumption may lead to a less politically informed public, this study provides no evidence that politically slanted media consumption decreases citizens' factual issue knowledge. Results from this research showed that

issue knowledge does not mediate the relationship between likeminded media use, attitudinal polarization, and political participation. Although likeminded media consumption may contribute to a healthy democracy by energizing citizens to actively participate in politics, the results of the current study could suggest that participatory activities driven by congenial media consumption may not be based on gaining political issue knowledge.

The belief model set forth suggests the following sequence: likeminded media use affects individuals' beliefs associated with candidates; these beliefs, in turn, trigger attitudinal polarization; and, finally, polarized attitudes lead to higher levels of political participation. This study found considerable support for the theorized model. The results demonstrated that exposure to likeminded media was significantly associated with individuals' beliefs, and these beliefs subsequently played a substantial role in citizens' attitudinal polarization and political participation. More specifically, conservatives' beliefs that the United States is not ready to elect a Black president mediated the influence of likeminded media use on political polarization and participation. This finding suggests that conservative media may have motivated conservative people by providing and activating a belief cue and subsequently polarizing their attitudes toward candidates and mobilizing them to participate in politics. Liberals, meanwhile, were more likely to use the other belief about McCain's age. Liberals consuming liberal media outlets were more likely to believe that McCain is too old to be president, and this perception subsequently contributed to attitudinal polarization and increased levels of political participation.

In sum, this study provides evidence of a significant role of beliefs in the process of political polarization and participation. Once political beliefs associated with candidates have been activated by likeminded media consumption, these beliefs are more accessible for subsequent judgments in one's cognitive network. As a consequence, the enhanced accessibility of beliefs influences citizens' attitudes toward candidates. These findings are consistent with previous research demonstrating that individuals' political beliefs and perceptions are activated by media use and influence viewers' attitudes and opinions (e.g., Domke, 2001). While prior research on the relationship between media use and beliefs has focused mainly on general media use, this study expands the current literature by providing evidence that citizens' politically slanted media consumption indirectly influences attitudinal polarization and political participation via political beliefs. These results indicate that beliefs may play an important role particularly when citizens consume likeminded media outlets in forming polarized attitudes and participating in politics.

Notably, these findings—the knowledge model versus the belief model—show the contrasting mechanisms of political polarization and participation derived by likeminded media use and thus provide evidence for discussing the normative consequences of likeminded media use. Citizens' likeminded media consumption fails to increase factual issue knowledge in the present study. Instead, ideologically likeminded media use produces beliefs associated with candidates (i.e., McCain's age and Black presidency), and these political beliefs, in turn, lead to more polarized attitudes and higher levels of political participation. Therefore, citizens' beliefs can

be explained as mechanisms of political polarization and participation that are driven by ideologically likeminded media consumption.

There are some limitations in the current study that have to be acknowledged. The first is that the data used are not well-suited for proving causal relationships. Although these causal hypotheses were based on previous research, the cross-sectional data analyzed cannot provide clear insight regarding causal direction. This means that it is still possible that individuals who are more participatory and polarized are more likely to expose themselves to likeminded media outlets. Also, one may think that politically likeminded media use, which makes partisan beliefs salient, would seem to be not a cause, but an outcome. However, there are theoretical reasons to expect that the causal direction is as proposed. For example, the idea that those who participate more often and/or have more polarized attitudes form more biased beliefs associated with candidates' age and race seems to make less sense than the notion that ideologically consonant media use may influence individuals' beliefs about candidates, which in turn influences candidate evaluations and participatory activities. Indeed, many studies using cross-sectional data have assumed that media consumption relates to individuals' attitudes and behavioral outcomes (e.g., Shah, Kwak, & Holbert, 2001). Panel studies have also provided more evidence of the causal relationships proposed and tested here, thereby lending support to the proposed causal order (e.g., Dilliplane, 2011; Stroud, 2010). Nevertheless, testing a non-recursive model by, for example, using panel data and experiments could shed more light on the causality issue and is suggested for future research.

Another point that should be noted is that this study has a somewhat straightforward assessment about candidate issue knowledge. Although the findings provide no evidence of a significant link between ideologically likeminded media use and individuals' issue knowledge, these results may be due to the issue knowledge measurements used. Considering that the measures of issue knowledge were somewhat general, it could be argued that the non-significant relationships between like-minded media use and issue knowledge are attributable to a lack of more sophisticated issue knowledge items (e.g., more specific or detailed information about campaign issues such as asking about specific policies regarding tax cuts rather than just "which candidate would provide more tax cuts to the middle class?"). Thus, improving upon the measurement of issue knowledge is one path to pursue; such studies on the relationship between likeminded media consumption and factual knowledge with more developed measures will generate more understanding.

Another limitation of the study relates to the measurement of the key variable, likeminded media use. This study measures exposure to politically likeminded media based on respondents' perceptions of media slant. Yet people do not interpret the slant of media coverage in the same manner. For instance, age and education proved to be significant factors influencing individuals' perceived media slant (Gunther & Chia, 2001). In particular, as mentioned earlier, because of hostile media perception, people sometimes misestimate the extent of their true disagreement or agreement with the mass media, meaning that respondents' perception-based approach may not

be a perfect measure (Vallone, Ross, & Lepper, 1985). Despite the perception approach's advantages and unique implications, therefore, further analysis with an actual measures approach and/or experimental design could be an important avenue for future research to see whether it will replicate the findings of the current study or yield a different picture.

In addition, with the secondary analysis of surveys, the researcher has to work with limited questions. For example, there are some potential issues regarding the measure of likeminded media use. Measures of likeminded media only tap a single source for the majority of campaign information in a given medium even though there could be more than one source of information. The measure also fails to tap frequency of use. Having more diverse information sources and taking usage frequency into account would be more thorough measures of likeminded media consumption, so these considerations are suggested for future research.

Furthermore, beliefs about McCain's age and Obama's race or America's readiness for a Black president are not equivalent. In other words, asking for respondents' belief about McCain's age is not the same as asking whether the respondent thinks the country is ready to elect a Black president. Also, beliefs were measured with a single question for each in this study. Future research could address these shortcomings by employing more equivalent and specific measures of perceptions of candidates, such as asking general questions about older people (e.g., whether older people are too weak to run for office and so on) and African Americans (e.g., whether Blacks are intelligent or unintelligent and so on) using multiple measurement items for beliefs.

Limitations notwithstanding, this research contributes to the study of the consequences of likeminded media consumption by accounting for the normative implications of exposure to likeminded perspectives. In sum, this study challenges the argument in the current literature that exposure to likeminded media outlets can be normatively desirable due to its contribution to citizens' greater levels of political participation. The mediating role of beliefs in the relationship between likeminded media consumption and political engagement calls into question such a contention since the results suggest that individuals who consume likeminded media are motivated to participate in political activities by forming ideologically biased beliefs rather than by gaining factual issue knowledge, which is in contrast to democratic theory's assumption of informed citizens. Given the findings, this study calls our attention to the necessity to critically examine the consequences of likeminded media use in the democratic process and carefully discuss potential fixes.

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Notes

1. Although selective exposure technically refers to individuals' seeking out information that agrees with their perspectives while avoiding challenging viewpoints, this study focuses specifically on the use of likeminded media outlets. Recent literature, for example, argues that exposure to confirmatory information needs to be distinguished from avoidance of attitude-discrepant information because the consequences of these two forms of exposure—for instance, affirming one's sense of correctness and producing negative emotional reaction, respectively—are not equivalent (see Garrett, Carnahan, & Lynch, 2013). Indeed, many studies have focused on the selection of likeminded information, particularly the consequences of selective exposure on individuals' attitudes and behaviors, and the impact of cross-cutting exposure has been separately investigated in the literature (Dilliplane, 2011; Johnson, Bichard, & Zhang, 2009; Mutz, 2002a; Price, Cappella, & Nir, 2002). In addition, it is important to note that it is very difficult to know, in survey research, whether media selectivity is conscious (i.e., driven by individuals' choice or motivation) or is not necessarily motivated by media users per se, but externally imposed (i.e., de facto selective exposure; see, e.g., Garrett, 2009). Despite this distinction, researchers have conceptualized selective exposure without clarifying those different types of selectivity (e.g., Gil De Zúñiga, Correa, & Valenzuela, 2012; Stroud, 2010). Some researchers, however, tend to use the term "likeminded media use" instead of "selective exposure" (Dilliplane, 2011), which may ease concerns about the clear definition of selective exposure regarding the issue of selectivity. Thus, this study will focus on individuals' likeminded media use throughout to be clear that the focus of the current study is about the consequences of likeminded media consumption rather than on what causes media selectivity.
2. Although this study focuses on attitudinal polarization, it is worth noting that there is a literature in the interpersonal political discussion domain dealing with ambivalence using a similar but not identical measure. Ambivalence is defined as the "individual's endorsement of competing considerations relevant to evaluating an attitude object" (Lavine, 2001, p. 915). The concept of ambivalence captures individuals' simultaneously holding both positive and negative attitudes toward a single attitude object including political candidates. Individuals' ambivalence toward candidates—McCain (M) and Obama (O)—can be measured with the following equation: $Ambivalence = (M + O) / 2 - |M - O|$. Ambivalence score was measured by taking into account: (1) the average attitudinal intensity of the two ratings, and (2) the disparity between them (see Lavine, 2001; Nir, 2005). With the rating scores ranging from 0 to 10, with 0 indicating the least favorable rating and 10 the most favorable, the theoretical range of the ambivalence score is from -5 (= least ambivalence) to 10 (= most ambivalence). For example, a respondent who rated McCain = 0 and Obama = 10 shows the lowest ambivalence score of -5. As such, the measures of polarization and ambivalence are not identical, but very similar. To see how polarization and ambivalence are related, ambivalence was additionally calculated using the above equation. It turned out that polarization and ambivalence are highly correlated ($r = -.88, p < .001$), suggesting that ambivalence can be considered just a different operationalization of polarization. Indeed, analysis of ambivalence in the models showed very similar results to models with polarization.
3. Literature suggests that general political knowledge should also be controlled for because it is associated with individuals' learning during a campaign (Brians & Wattenberg, 1996; Price & Zaller, 1993). One may wonder if general political knowledge and factual issue knowledge would be highly correlated and thus influence the relationships found. It turned out that they are moderately correlated ($r = .42, p < .01$), but dropping general political knowledge did not change the results. In any case, general political knowledge was included as a control variable in both the knowledge model and the belief model to have the same sets of control variables across both models.
4. Given the nature of this study, which focuses on testing the potential mediating role of political knowledge in the relationships between likeminded media use and political polarization and participation, the influence of control variables is not discussed in the text. The effects of demographic variables (gender, age, education, income, and race), political orientation (political efficacy, campaign interest, and general political knowledge), general media consumption (TV,

radio, newspapers, and online), the time of interview, and dissonant media use were included in the model in which such variables, as control variables, predict all outcome variables. Furthermore, the path model for knowledge does not provide goodness of model fit since it is a saturated model, which leaves no degrees of freedom for testing the goodness of fit of the model. This saturated model, however, is appropriate for the goal of this study, which is to investigate the potential mediating role of issue knowledge in the relationships between likeminded media use and political polarization and participation, rather than building a model that is as parsimonious as possible and satisfactorily fits a set of data.

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Media Diversity Policies for the Public: Empirical Evidence Examining Exposure Diversity and Democratic Citizenship

Dam Hee Kim and Nojin Kwak

The pursuit of media diversity as a policy goal finds its foundation in First Amendment values which assume that the public welfare requires broad dissemination of information from diverse and antagonistic sources. Using 5 waves of panel data collected during the 2008 presidential campaign in the U.S., this article empirically examines the assumption that seeking diverse and antagonistic viewpoints reflects good citizenship. The results suggest that heavy consumption of liberal and conservative viewpoints together leads to higher levels of political knowledge, but suppresses political participation. The role of news media use in democratic citizenship might depend on quantity as well as on diversity.

In 1949, the Federal Communications Commission (FCC) adopted the Fairness Doctrine to ensure that licensed broadcasters presented opposing views on controversial issues. However, in 1987, the FCC repealed the Fairness Doctrine, no longer believing that the content regulation implied in the Doctrine was a necessary or appropriate means to ensure the public's access to information from diverse and antagonistic sources. The Doctrine was officially eliminated in 2011.

The FCC, nevertheless, still believed in the ultimate objective of the Fairness Doctrine, the public's interest in viewpoint diversity, which they then believed to be fully served by the "multiplicity of voices in the marketplace" (Wisdom Fund, 1997). Scholars also echoed the importance of viewpoint diversity for good citizenship with political knowledge, tolerance, and participation (Kim & Pasek, 2016; Mutz, 2006; Napoli, 1999; Prior, 2007; Stroud, 2011).

As an indirect means to ensure viewpoint diversity, the FCC paid much attention to the multiplicity of broadcast ownership (Baker, 2007; Einstein, 2004; Napoli,

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2011). Concerning media diversity as a policy goal, the FCC specifically aimed for the widest dissemination of “information from diverse and antagonistic sources” for the health of a democratic society (*Associated Press v. United States*, 1945). However, the FCC had not yet demonstrated that its regulation on the multiplicity of broadcast ownership improved viewpoint diversity (Baker, 2007; Einstein, 2004; Horwitz, 2005). Most empirical studies examined broadcast ownership’s relationship with program-type diversity or provision of news programming, rather than its relationship with viewpoint diversity (e.g., Berry & Waldfogel, 2001; Einstein, 2004; Napoli & Yan, 2007). Also, much of the discussion of media diversity focuses on how viewpoint diversity is critical for the welfare of democratic citizens, despite only limited empirical evidence to support this conviction.

Thus, this paper empirically examines whether and to what extent exposure to diverse viewpoints is related to good citizenship. Focusing on individual user-level analyses, this article specifically investigates the relationship between audiences’ exposure diversity (Napoli, 2011)—the degree to which audience members expose themselves to diverse and antagonistic viewpoints—and their democratic citizenship, including political knowledge and participation. Furthermore, this paper examines whether such exposure diversity disproportionately benefits a certain group of audiences. This article consists of two secondary analyses of the 2008 National Annenberg Election Survey (NAES) panel data—cross-sectional and panel analyses. Based on empirical evidence, this paper will provide suggestions for future media diversity-related policy development.

Legal Foundation for Media Diversity as a Policy Goal

The pursuit of media diversity as a policy goal finds its legal foundation in First Amendment values; the importance of media diversity is often discussed relative to terms such as the public interest, a free press, and the marketplace of ideas (Einstein, 2004; Hopkins, 1996; Horwitz, 2005). In the *Associated Press v. United States* (1945), it was argued that the freedom of the press was necessary for public interest. According to Justice Black, the First Amendment assumed that a free press led to a free society and that information from diverse and antagonistic sources contributed to the public wellbeing. Concurring, Justice Frankfurter stated that the First Amendment promoted “the dissemination of news from many different sources, and with as many different facets and colors as is possible” (*Associated Press v. United States*, 1945). Furthermore, in the prevailing opinion, Justice Frankfurter distinguished between the business of the press and that of manufactured goods. Along the same lines, in the dissenting opinion, Justice Murphy noted that while other businesses manufacturing goods merely pursued profit, the press had a unique stake in public interest through collection and distribution of news and information. As such activities are critical for the health of democracy and the wellbeing of the public, the press arguably has a stake in the public interest and thus, needs to pursue a diversity of information and viewpoints, not just profit.

Justice Black's argument for "information from diverse and antagonistic sources" in 1945 appears consistent with Justice Holmes' constitutional argument, summarized as: "not free thought for those who agree with us, but freedom for the thought that we hate" (*United States v. Schwimmer*, 1929). In line with this argument, Justice Holmes in *Abrams v. United States* (1919) first used the metaphor of a marketplace of ideas, "an open forum to which all ideas have access and where all are fairly and judiciously considered" (Entman & Wildman, 1992, p. 6). Justice Holmes stated that citizens had a better chance to reach the ultimate good by free trade in both agreeable and abhorrent ideas when these ideas competed in the marketplace.

Early legal discussions on media diversity revolved around the value of diverse viewpoints and information for the health of democracy. Such discussion became the basis for the Communications Act of 1934, which currently remains in effect after several amendments. In principle, public broadcasting should offer a diversity of programming, cable communications should offer "the widest possible diversity of information sources" (§ 601. (4)) and the Internet should offer "a forum for a true diversity of political discourse" (§ 230. (3)). Given the fundamental importance of media diversity, its conceptualization and measurement have been examined by various courts, the Congress, the FCC, and communications scholars.

Media Diversity: Conceptualization and Measurement

Defining and measuring media diversity is an important task, but it has proven difficult (Barron, 2000; Einstein, 2004; Entman & Wildman, 1992). Recognizing its importance, Napoli (1999) divided diversity into 1) source diversity, 2) content diversity, and 3) exposure diversity.

Citizens are free to choose from a wide range of ideas (content diversity), delivered from a wide range of sources (source diversity). The citizens then partake of this diversity (exposure diversity) to increase their knowledge, encounter opposing viewpoints, and become well-informed decision-makers who are better capable of fulfilling their democratic responsibilities in a self-governing society. (p. 9)

Essentially, citizens who expose themselves to a broader range of viewpoints are likely to have more political knowledge and better fulfill their democratic duties, which are two important aspects of democratic citizenship. This assumed relationship of democratic citizenship and exposure to diverse and antagonistic viewpoints is what this paper empirically examines.

Although the FCC aims to ensure viewpoint diversity for a healthy democracy, it has long focused on increasing ownership diversity, a subcomponent of source diversity. Because the anti-censorship constraints of the First Amendment do not allow policymakers to regulate content, the FCC has adopted structural regulations governing broadcast ownership as an indirect means of achieving viewpoint

diversity. A substantial number of media policies depend upon the assumption that greater ownership diversity equals greater viewpoint diversity (i.e., a subcomponent of content diversity), and perhaps a healthier democracy (Einstein, 2004; Napoli, 2011; Noam, 2009).

There is, however, little support for this assumed relationship between ownership diversity and viewpoint diversity (Baker, 2007; Einstein, 2004; Horwitz, 2005; Napoli, 2011). Most empirical studies cited to support regulations on broadcast ownership did not examine ownership diversity's relationship with viewpoint diversity (e.g., Berry & Waldfoegel, 2001; Einstein, 2004; Napoli & Yan, 2007). Rather, these studies investigated ownership diversity's relationship with program-type/format diversity, another subcomponent of content diversity that taps the range of different genres of available programs. However, as Karppinen (2006) points out, measuring program-type diversity "shed[s] no lights on the diversity of views" (p. 63).

Viewpoint diversity's relationship with ownership diversity was examined in Pritchard (2002) and Ho and Quinn (2009). Neither study found support for the assumption that less ownership diversity would correspond to less viewpoint diversity, although they were cautious not to generalize their findings beyond the few outlets examined. Also, Rennhoff and Wilbur (2002) did not find support for the assumed relationship between ownership diversity and viewpoint diversity. Their econometrics analysis revealed only a negligible relationship between ownership diversity and viewpoint diversity.

Exposure Diversity and Democratic Citizenship

Although media diversity policies have long focused on ownership diversity, assuming its positive relationship with viewpoint diversity, Napoli (2011) suggested more attention should be devoted to exposure diversity, "the extent to which audiences consume a diverse array of content" (p. 248). The public must be exposed to a diversity of information and viewpoints (Napoli, 2011), if diversity is indeed essential for the health of democracy (*Associated Press v. United States*, 1945). However, exposure diversity was measured in only a few studies, using television usage data. For example, Webster (2007) measured horizontal diversity of exposure across television networks as a network's share of total audience viewing and vertical diversity of exposure as an audience member's average time spent viewing a channel per week. However, the primary concern here was not audiences' exposure to diverse viewpoints or its relationship with good citizenship.

In the context of interpersonal communication, Mutz (2006) examined people's exposure to different political views and such exposure's relationship with democratic citizenship. Diversity was specifically viewed as "the extent that a given person is exposed to those of oppositional views versus those of like mind" (p. 13). To operationalize diversity, Mutz (2002a, 2002b) used measures such as exposure to dissonant or consonant political views, which considered how frequently a person discussed politics with others whose political views differed from or resembled their

own. The results suggested exposure to dissonant viewpoints in interpersonal communication increased people's political tolerance (Mutz, 2002a), but decreased their political participation (Mutz, 2002b).

In the context of mediated communication, this paper empirically examines audiences' exposure to diverse and antagonistic viewpoints, and its relationship with democratic citizenship indicators, political knowledge, and participation. To tap exposure to diverse viewpoints, we use politically diverse viewing (i.e., an audience's degree of exposure to a wide spectrum of viewpoints among liberal, neutral, and conservative programs). To gauge an audience's exposure to antagonistic viewpoints, we jointly consider liberal content viewing and conservative content viewing (i.e., the extent to which an audience watches liberal and conservative programs respectively).

First, this paper examines the relationship between audiences' exposure to diverse viewpoints and their political knowledge and participation. Under the theoretical framework of Uses and Gratifications, different patterns of media use were reported to be related to democratic citizenship. For instance, Internet use for information needs was found to be related to participation and engagement (Boulianne, 2009; Kenski & Stroud, 2006; Shah, Kwak, & Holbert, 2001; Shah, McLeod, & Yoon, 2001) and political efficacy and knowledge (Kenski & Stroud, 2006).

However, even if audiences spend the same amount of time using a medium for information purposes, they may have very dissimilar experiences. Specifically, people's degree of exposure to diverse viewpoints may vary, given the abundance of news content with clear ideological orientations on cable TV (Dilliplane, 2011; Stroud, 2011) and on the Internet (Gentzkow & Shapiro, 2010; Sunstein, 2009). That is, some people may expose themselves to information and viewpoints from diverse sources whereas others may seek information from a single source or from sources that share similar viewpoints. These groups may demonstrate different relationships with democratic citizenship indicators, such as political knowledge and participation. Theoretically, audiences who expose themselves to diverse viewpoints should be well-informed, and be able to fulfill their democratic duties (Mutz, 2006; Napoli, 1999; Prior, 2007; Stroud, 2011). Thus, it is hypothesized that a person's politically diverse viewing has a positive relationship with his/her democratic citizenship, regardless of news media usage.

H_{1a}: No matter how much news media a person uses, s/he will become more politically knowledgeable if engaged in more politically diverse viewing.

H_{1b}: No matter how much news media a person uses, s/he will become more participatory in politics if engaged in more politically diverse viewing.

Furthermore, we investigate whether a person's politically diverse viewing and news media usage have an interactive relationship with political knowledge and participation. Although news media usage as well as politically diverse viewing theoretically increase political knowledge and participation, politically diverse

viewing can be more beneficial to certain groups of media users than others. For instance, heavy news viewers are already quite knowledgeable about politics (Chaffee & Kanihan, 1997; Delli-Carpini & Keeter, 1996; Kenski & Stroud, 2006), and may experience a ceiling effect. That is, among heavy news viewers, politically diverse viewing may not be positively related to more political knowledge, whereas for light news viewers, more politically diverse viewing is associated with more political knowledge. Similarly, heavy news viewers are likely already politically active (Eveland & Scheufele, 2000; McLeod, Scheufele, & Moy, 1999), and thus, politically diverse viewing may be positively related to political participation only among light news viewers. In this vein, the following research questions are advanced:

RQ_{1a}: Does the relationship between politically diverse viewing and political knowledge vary depending on a person's news media usage?

RQ_{1b}: Does the relationship between politically diverse viewing and political participation vary depending on a person's news media usage?

Lastly, using liberal and conservative content viewing measures, we focus on a special case of exposure diversity—exposure to antagonistic viewpoints—and examine its relationship with democratic citizenship. Generally, exposure to diverse as well as antagonistic viewpoints should bring about benefits for democratic citizens (*Associate Press v. United States*, 1945; Mutz, 2006; Napoli, 1999). However, another line of research suggests that exposure to antagonistic viewpoints via liberal and conservative programs can be detrimental to political knowledge and participation. Around important issues, liberal and conservative news sources may present potentially conflicting aspects and viewpoints (Dilliplane, 2011; Feldman, Maibach, Roser-Renouf, & Leiserowitz, 2012; Jamieson & Cappella, 2008; Muddiman, Stroud, & McCombs, 2014; Stroud, 2011), and thus, heavy consumption of content from both liberal and conservative viewpoints may leave audiences confused, demonstrating a negative relationship with political knowledge. Also, after facing possibly competing viewpoints on issues, audiences may become ambivalent about political issues or candidates, and refrain from political participation (Lavine, 2001; Mutz, 2002b). Given these two different possibilities, the following research questions are formulated to examine whether exposure to antagonistic viewpoints has the same relationship with democratic citizenship indicators as politically diverse viewing:

RQ_{2a}: Does the relationship between liberal content viewing and political knowledge vary depending on a person's conservative content viewing?

RQ_{2b}: Does the relationship between liberal content viewing and political participation vary depending on a person's conservative content viewing?

Method

Sample

The current study is a secondary data analysis of five waves of the 2008 National Annenberg Election Survey (NAES) panel. The panel survey contained interviews via the Internet with 28,985 adults in the United States, a nationally representative random sample drawn from a panel maintained by Knowledge Networks. This KnowledgePanel group, which was originally recruited by telephone random digit dialing, provided Internet access for survey participation in case respondents needed it. All 28,985 respondents were invited for re-interviews for subsequent waves. Data for the first wave were collected during the pre-primary period (between October 2 and December 31, 2007); Wave 2 were collected during the primary election period (between January 1 and March 31, 2008); Wave 3 were collected in spring and summer (between April 2 and August 28, 2008); Wave 4 were collected during the general election period (between August 29 and November 4, 2008); and Wave 5 were collected during the post-election period (between November 5, 2008 and January 31, 2009).

Operationalization

Political Participation. A composite index was created to tap respondents' political participation. Respondents were asked in Waves 4 and 5 whether they participated in the following three types of activities: telling people why to vote for or against a candidate; attending a political meeting; and showing a campaign sign. Responses were summed to form an additive index, ranging from 0 to 3 (Wave 4: KR-20 = .61, M = .48, SD = .79, Wave 5: KR-20 = .63, M = .55, SD = .85).

Political Knowledge. Respondents were asked in Waves 2 and 3 to place one Republican candidate and two Democratic candidates (i.e., John McCain, Hilary Clinton, and Barack Obama) in terms of political ideology using a 7-point scale ranging from *extremely liberal* (1) to *extremely conservative* (7). A 2-point political knowledge index was formed by comparing respondents' respective placements of (a) McCain and Clinton, and (b) McCain and Obama. For example, regarding (a) McCain and Clinton, respondents who considered McCain to be more conservative than Clinton (or Clinton to be more liberal than McCain) were given 1. Respondents were given 0 if they reported that McCain was as conservative as or less conservative than Clinton, if they stated they "did not know" or if they skipped question(s) (Wave 2: KR-20 = .92, M = 1.37, SD = .89, Wave 3: KR-20 = .56, M = 1.08, SD = .77).¹

Politically Diverse Viewing. This variable measured the degree to which a respondent exposed him/herself to diverse political content. Respondents were asked in Waves 2 and

4 to report TV programs that they watched regularly, at least once a month, among a list of Nielsen's most watched 45 news shows. Three categories of TV shows, liberal, conservative, and neutral (see Dilliplane, 2011 for the full list), were considered to tap diverse information and viewpoints. Specifically, 15 shows (e.g., *MSNBC Live*, *Countdown with Keith Olbermann*, and *Hardball with Chris Matthews*, all on MSNBC) were coded as **liberal** shows whereas 11 shows (e.g., *the Glenn Beck Show*, *the O'Reilly Factor*, and *the Sean Hannity Show*, all on Fox News) were coded as **conservative** shows. Additionally, 19 shows (e.g., NBC's *Nightly News with Brian Williams*, CBS's *Evening News with Katie Couric*, and ABC's *World News with Charles Gibson*) were coded as **neutral** shows. Each show's political orientation was evaluated based on the general public's perceptions, specifically, which candidate viewers thought each show supported (see Dilliplane, 2011).

A respondent's politically diverse viewing score was marked as 0 if s/he did not watch any shows, as 1 if s/he watched only one of the content categories, as 2 if s/he watched two content categories, or as 3 if s/he watched all three content categories (Wave 2: $M = 1.86$, $SD = .95$, Wave 4: $M = 1.84$, $SD = .95$). Of all Wave 2 respondents, 9.9% scored 0; 23.8% viewed only liberal, only conservative or only neutral show (score = 1); 37% exposed themselves to two types (score = 2); and 29.4% viewed all three types (score = 3). With this measure, neutral content was treated as equally distinct from liberal or conservative content.

Liberal Content Viewing. Among the 15 shows with **liberal** content, the number of shows that a respondent viewed regularly constituted his/her liberal content viewing score. It ranged from 0 to 15 (Wave 2: $M = 1.77$, $SD = 2.14$, Wave 4: $M = 1.92$, $SD = 2.30$).

Conservative Content Viewing. Among the 11 shows with **conservative** content, the number of shows that a respondent viewed regularly constituted his/her conservative content viewing score. It ranged from 0 to 11 (Wave 2: $M = 1.27$, $SD = 2.22$, Wave 4: $M = 1.33$, $SD = 2.32$).

News Media Usage. Respondents reported whether they heard anything about the presidential campaign from six news sources: TV news program (morning or evening); newspapers; TV talk shows, public affairs or news analysis programs; Internet sites, chat rooms or blogs; radio news or radio talk shows; and news magazines. Their responses were summed to form an index, ranging from 0 to 6 (Wave 2: $M = 3.07$, $SD = 1.50$, Wave 4: $M = 2.18$, $SD = 1.99$).

Control Variables. As control variables, this study included the demographic variables of age, gender, education and household income, in addition to political interests, which have been demonstrated to affect democratic citizenship (Shah, Cho, Eveland, & Kwak, 2005). Respondents reported their interest in politics and public affairs using a 4-point scale, ranging from *not at all interested* (0) to *very interested* (3)

($M = 1.95$, $SD = .90$). All control variables were measured in the profile Wave B where respondents provided information on their demographics and background.

Analysis

The current study's hypotheses and research questions were investigated in two ways.² First, a set of cross-sectional analyses was conducted. Specifically, ordinary least squares (OLS) regression models were estimated with heteroscedasticity-consistent standard errors (Hayes & Cai, 2007). Data from different waves were used, depending on which variables were available in the panel data. In predicting political knowledge, Wave 2 data were analyzed whereas Wave 4 data were analyzed in predicting political participation.

Second, a series of panel analyses (i.e., OLS lagged dependent variable regressions) were run in order to strengthen causal inferences from the current study's findings (Eveland & Thomson, 2006; Finkel, 1995). OLS lagged dependent variable regressions allow researchers to evaluate independent variable(s)' effect on a change in the dependent variable at Time 2, relative to what would have been expected with knowing the dependent variable at Time 1 (Eveland & Thomson, 2006). If independent variables explain the dependent variable at Time 2 after the dependent variable at Time 1 is controlled for, this can be treated as evidence that there is possibly a causal relationship between independent variables and the dependent variable (Finkel, 1995). In this study's two panel analyses predicting Wave 3 political knowledge, two sets of Wave 2 independent variables (i.e., news media usage and politically diverse viewing; and liberal and conservative content viewing) were respectively used while Wave 2 political knowledge was controlled for. In the other two panel analyses predicting Wave 5 political participation, two sets of Wave 4 independent variables (i.e., news media usage and politically diverse viewing; and liberal and conservative content viewing) were respectively used while Wave 4 political participation was controlled for.

Results

Cross-Sectional Analysis

OLS regressions were run to examine politically diverse viewing and overall news media usage's relationship with political knowledge and political participation (Table 2). When news media usage and politically diverse viewing's associations with political knowledge were examined separately, news media usage was positively related to political knowledge ($\beta = .08$, $SE(HC) = .01$, $p < .01$) while diverse viewing was not ($\beta = .004$, $SE(HC) = .01$, $p > .05$, RH_{1a} rejected). However, the interaction term between news media usage and politically diverse viewing was found negative and significant for political knowledge ($\beta = -.03$, $SE(HC) = .01$,

Table 1
Correlation Metrics

	IV1 (Wave 2)	IV2 (Wave 2)	IV3 (Wave 2)	IV4 (Wave 2)	DV1 (Wave 2)	DV1 (Wave 3)	DV2 (Wave 4)	DV2 (Wave 5)
IV1 (Wave 2)	1	.22**	.26**	.13**	.28**	.18**	.25**	.26**
IV2 (Wave 2)	-	1	.55**	.38**	.08**	.04**	.10**	.10**
IV3 (Wave 2)	-	-	1	.17**	.11**	.09**	.16**	.15**
IV4 (Wave 2)	-	-	-	1	.14**	.09**	.12**	.11**
DV1 (Wave 2)	-	-	-	-	1	.48**	.22**	.24**
DV1 (Wave 3)	-	-	-	-	-	1	.16**	.19**
DV2 (Wave 4)	-	-	-	-	-	-	1	.59**
DV2 (Wave 5)	-	-	-	-	-	-	-	1

Note. Independent Variable 1 (News Media Usage), Independent Variable 2 (Politically Diverse Viewing), Independent Variable 3 (Liberal Content Viewing), Independent Variable 4 (Conservative Content Viewing), Dependent Variable 1 (Political Knowledge), Dependent Variable 2 (Political Participation), ** p < .01 (2-tailed)

Table 2
Cross-Sectional Analysis: Predicting Political Knowledge and Participation with News Media Usage and Politically Diverse Viewing

	Political Knowledge (Wave 2)		Political Participation (Wave 4)	
	β (SE(HC))	β (SE(HC))	β (SE(HC))	β (SE(HC))
Constant	1.45** (.01)	1.46** (.01)	.54** (.01)	.54** (.01)
Sex	-.12** (.01)	-.12** (.01)	.07** (.02)	.07** (.02)
Age	.003 (.01)	.003 (.01)	-.02* (.01)	-.02* (.01)
Education	.15** (.01)	.15** (.01)	.03** (.01)	.03** (.01)
Income	.11** (.01)	.11** (.01)	.02* (.01)	.02* (.01)
Political interests	.22** (.01)	.22** (.01)	.29** (.01)	.29** (.01)
News media usage	.08** (.01)	.08** (.01)	.21** (.01)	.21** (.01)
Politically diverse viewing	.004 (.01)	.01 (.01)	.04** (.01)	.03** (.01)
News media use X Politically diverse viewing		-.03** (.01)		.02+ (.01)
Total R ²	.19	.19	.19	.19
N	15,237	15,237	16,399	16,399

** p < .01, * < .05, + < .1

p < .01, RQ_{1a}). Heavy news consumers appeared no more politically knowledgeable if they engaged in more politically diverse viewing. However, audience members with low news media usage were likely to be more politically knowledgeable if they engaged in more politically diverse viewing. With political participation, news media use ($\beta = .21$, SE(HC) = .01, p < .01) was positively associated, as was politically diverse viewing ($\beta = .04$, SE(HC) = .01, p < .01, H_{1b} supported). Also, the interaction term between news media usage and politically diverse viewing was found positive and significant for political participation to a marginal degree ($\beta = .02$, SE(HC) = .01, p < .1, RQ_{1b}). That is, light news consumers appeared no more politically active if they engaged in more politically diverse viewing. However, audience members with heavy news media usage were likely to be more politically active if they engaged in more politically diverse viewing.

Another set of OLS regressions was conducted to examine liberal content viewing and conservative content viewing's interactive relationship with political knowledge and political participation (Table 3). The interaction term between liberal content viewing and conservative content viewing was found negative and significant for political knowledge ($\beta = -.04$, SE(HC) = .01, p < .01, RQ_{2a}). Specifically, low liberal content viewing citizens were likely to be more politically knowledgeable if they viewed more conservative content. However, high liberal content viewing citizens

Table 3
Cross-Sectional Analysis: Predicting Political Knowledge and Participation with Liberal Content Viewing and Conservative Content Viewing

	Political Knowledge (Wave 2)		Political Participation (Wave 4)	
	β (SE(HC))	β (SE(HC))	β (SE(HC))	β (SE(HC))
Constant	1.45** (.01)	1.46** (.01)	.56** (.01)	.57** (.01)
Sex	-.11** (.01)	-.11** (.01)	.07** (.01)	.06** (.01)
Age	-.01 (.01)	-.01 (.01)	-.03** (.01)	-.03** (.01)
Education	.16** (.01)	.16** (.01)	.03** (.01)	.03** (.01)
Income	.10** (.01)	.10** (.01)	.01* (.01)	.01* (.01)
Political interests	.21** (.01)	.20** (.01)	.27** (.01)	.26** (.01)
News media usage	.08** (.01)	.08** (.01)	.19** (.01)	.19** (.01)
Liberal content viewing	.00 (.01)	.02* (.01)	.10** (.01)	.12** (.01)
Conservative content viewing	.07** (.01)	.08** (.01)	.06** (.01)	.07** (.01)
Liberal content viewing X Conservative content viewing		-.04** (.01)		-.06** (.01)
Total R^2	.20	.20	.20	.21
N	15,237	15,237	16,399	16,399

** $p < .01$, * $p < .05$

appeared no more politically knowledgeable if they consumed more conservative content. For political participation, the interaction term between liberal content viewing and conservative content viewing was found negative and significant ($\beta = -.06$, $SE(HC) = .01$, $p < .05$, RQ_{2b}). On the one hand, low liberal content viewing citizens were likely to be more politically active if they viewed more conservative content. On the other hand, high liberal content viewing citizens appeared no more politically active if they consumed more conservative content.

Panel Analysis

OLS lagged dependent variable regressions were run to examine politically diverse viewing and overall news media usage's effect on respective changes in political knowledge and participation at time 2, relative to knowledge and participation at time 1 (Table 4). When Wave 2 political knowledge was controlled for, both news media usage ($\beta = .01$, $SE(HC) = .01$, $p > .05$) and politically diverse viewing in Wave 2 ($\beta = .002$, $SE(HC) = .01$, $p > .05$) appeared to be unrelated to Wave 3 political knowledge (H_{1a} rejected). Also, the interaction effect of news media usage and

Table 4
Panel Analysis: Predicting Political Knowledge and Participation with News Media Usage and Politically Diverse Viewing

	Political Knowledge (Wave 3)		Political Participation (Wave 5)	
	β (SE(HC))	β (SE(HC))	β (SE(HC))	β (SE(HC))
Constant	1.13** (.01)	1.13** (.01)	.53** (.01)	.53** (.01)
Political knowledge (Wave 2)	.33** (.01)	.33** (.01)	-	-
Political participation (Wave 4)	-	-	.46** (.01)	.46** (.01)
Sex	-.02* (.01)	-.01* (.01)	-.01 (.01)	-.01 (.01)
Age	-.04** (.01)	.04** (.01)	.01* (.01)	.01* (.01)
Education	.04** (.01)	.04** (.01)	.03** (.01)	.03** (.01)
Income	.02* (.01)	.02* (.01)	.02+ (.01)	.02* (.01)
Political interests	.07** (.01)	.07** (.01)	.11** (.01)	.11** (.01)
News media usage	.01 (.01)	.01 (.01)	.06** (.01)	.06** (.01)
Politically diverse viewing	.002 (.01)	.002 (.01)	-.01 (.01)	-.003 (.01)
News media use X Politically diverse viewing		-.01 (.01)		-.01 (.01)
Total R ²	.24	.24	.41	.41
N	12,574	12,574	16,399	16,399

** p < .01, * < .05

politically diverse viewing in Wave 2 appeared to be non-significant on Wave 3 political knowledge when Wave 2 political knowledge was controlled for ($\beta = -.01$, SE(HC) = .01, $p > .05$, RQ_{1a}). On Wave 5 political participation, although Wave 4 news media use ($\beta = .06$, SE(HC) = .01, $p < .01$) had a positive effect, Wave 4 politically diverse viewing did not have a significant effect ($\beta = -.01$, SE(HC) = .01, $p > .05$, H_{1b} rejected) when Wave 4 political participation was controlled for. This is an indication that higher levels of news media use led to higher levels of political participation whereas politically diverse viewing did not. Also, the interaction effect of news media usage and politically diverse viewing in Wave 4 appeared to be non-significant on Wave 5 political participation when Wave 4 political participation was controlled for ($\beta = -.01$, SE(HC) = .01, $p > .05$, RQ_{1b}).

Another set of OLS lagged dependent variable regressions were conducted to examine the liberal content viewing and conservative content viewing's interaction effect on respective changes in political knowledge and political participation at Time 2, relative to knowledge and participation at Time 1 (Table 5). When Wave 2 political knowledge was controlled for, the interaction effect of liberal content

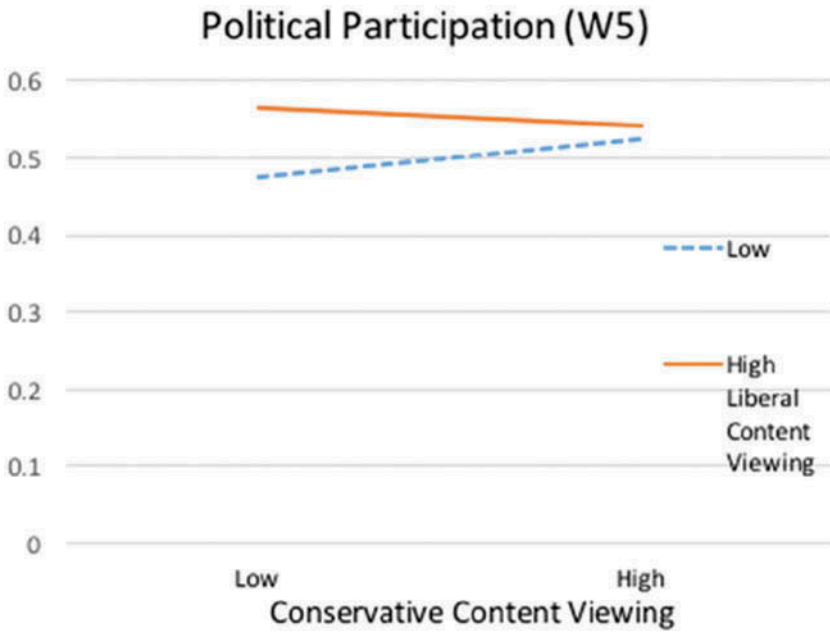
Table 5
Panel Analysis: Predicting Political Knowledge and Participation with Liberal Content Viewing and Conservative Content Viewing

	Political Knowledge (Wave 3)		Political Participation (Wave 5)	
	β (SE(HC))	β (SE(HC))	β (SE(HC))	β (SE(HC))
Constant	1.13** (.01)	1.13** (.01)	.54** (.01)	.54** (.01)
Political knowledge (Wave 2)	.32** (.01)	.32** (.01)	-	-
Political participation (Wave 4)	-	-	.45** (.01)	.45** (.01)
Sex	-.02* (.01)	-.02* (.01)	-.01 (.01)	-.01 (.01)
Age	-.04** (.01)	-.04** (.01)	.01 (.01)	.01 (.01)
Education	.04** (.01)	.04** (.01)	.04** (.1)	.04** (.01)
Income	.02* (.01)	.02* (.01)	.01* (.01)	.02* (.01)
Political interests	.07** (.01)	.07** (.01)	.10** (.01)	.10** (.01)
News media usage	.001 (.01)	.002 (.01)	.05** (.01)	.05** (.01)
Liberal Content Viewing	.02* (.01)	.02* (.01)	.02* (.01)	.03* (.01)
Conservative Content Viewing	.02* (.01)	.02* (.01)	.01 (.01)	.01 (.01)
Liberal Content Viewing X Conservative Content Viewing		-.0003 (.005)		-.02* (.01)
Total R^2	.24	.24	.41	.41
N	12,574	12,574	16,399	16,399

** $p < .01$, * $p < .05$

viewing and conservative content viewing in Wave 2 was found non-significant on Wave 3 political knowledge ($\beta = -.0003$, $SE(HC) = .01$, $p > .05$, RQ_{2a}). Still, both liberal content viewing ($\beta = .02$, $SE(HC) = .01$, $p < .05$) and conservative content viewing in Wave 2 ($\beta = .02$, $SE(HC) = .01$, $p < .05$) had positive impacts on Wave 3 political knowledge, relative to Wave 2 political knowledge. That is, more liberal content viewing as well as conservative content viewing appeared to lead to higher levels of political knowledge. When Wave 4 political participation was controlled for, the interaction effect of liberal content viewing and conservative content viewing in Wave 4 was found negative and significant on Wave 5 political participation ($\beta = -.02$, $SE(HC) = .01$, $p < .05$, RQ_{2b}). Specifically, among low liberal content viewing individuals, viewing more conservative content appeared to lead to higher levels of political participation (Figure 1). Among high liberal content viewing individuals, however, viewing more conservative content appeared to lead to lower levels of political participation.

Figure 1
Panel Analysis: Predicting Political Knowledge With Liberal Content Viewing and Conservative Content Viewing



Discussion

This study empirically examines the core assumption behind media diversity policies—the positive relationship between exposure to diverse and antagonistic viewpoints and good citizenship. The evidence from cross-sectional analyses suggests that audiences’ exposure to diverse viewpoints and news media usage can be considered jointly in examining political knowledge and participation. Exposure to politically diverse content appears to be positively related to political knowledge only among light news viewers. Considering the fact that news media, especially partisan media, tend to have a slant (Dilliplane, 2011; Feldman et al., 2012; Gentzkow & Shapiro, 2010; Jamieson & Cappella, 2008; Stroud, 2011), liberal, neutral, and conservative TV shows likely present slightly different issues and viewpoints. Compared to heavy news viewers who are already quite knowledgeable (e.g., Kenski & Stroud, 2006), light news viewers may find this exposure to diverse information and political views helpful in quickly understanding the issues, and thus may efficiently gain political knowledge.

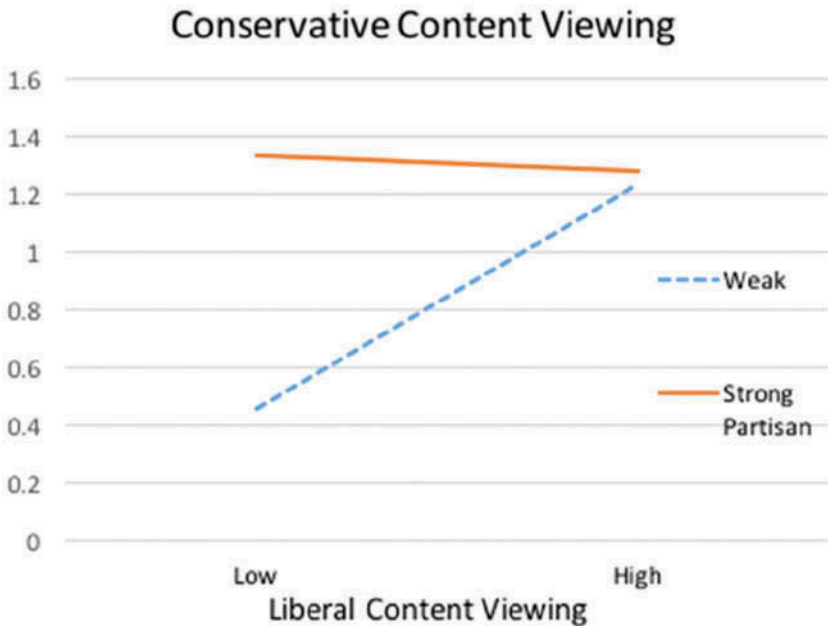
When it comes to political participation, exposure to politically diverse content appears to be positively related to political participation only among heavy news consumers. Frequent exposure to diverse viewpoints within a society may lead heavy news consumers to clarify their political positions, and motivate them to participate in politics in an effort to have their voices heard. The evidence from panel analyses, however, does not replicate the cross-sectional findings of politically diverse viewing's possible democratic benefits. One possible explanation involves reverse causality such that democratic citizenship leads to politically diverse viewing (see Kim & Pasek, 2016). The other possibility is that some other latent factor (e.g., democratic values) leads to both democratic citizenship indicators and politically diverse viewing. In future research, it is important that these possibilities are examined, and causal directions are further clarified between politically diverse viewing and democratic citizenship.

The evidence from both cross-sectional and panel analyses demonstrates the need to consider audiences' exposure to antagonistic viewpoints in examining democratic citizenship. Importantly, findings from OLS lagged dependent regressions suggest that both liberal and conservative content viewing increase political knowledge. Liberal and conservative TV shows likely deliver somewhat different information and viewpoints on political issues by relying on different sources and quotes, focusing on dissimilar aspects, and possibly presenting differing views (Dilliplane, 2011; Feldman et al., 2012; Jamieson & Cappella, 2008; Stroud, 2011). By viewing more of both liberal and conservative TV shows, audiences may intake information and viewpoints from opposing sides, and become more richly informed on politics, thus gaining political knowledge.

When it comes to political participation, however, heavy consumption of conservative content appears to lead to lower levels of political participation among individuals who consume liberal content to a great degree. Individuals who heavily view both liberal and conservative content will likely be exposed to possibly conflicting viewpoints from opposing sides. Accordingly, these individuals may become ambivalent about their political stances, refraining from further participation in politics (Lavine, 2001; Mutz, 2002b). These results found in the context of mediated communication appear consistent with diversity-related findings in the literature of interpersonal political talk. Exposure to cross-cutting viewpoints discourages political participation, as s/he may be anxious to take a stand opposing their family and friends because of already established relationships (Mutz, 2006). Also, in the context of mobile communication, having more political discussion among strong ties with heterogeneous views does not necessarily boost political participation (Campbell & Kwak, 2011). Although one might expect that on mass media, audiences may reject diverse viewpoints delivered from public figures without discomfort (e.g., Dilliplane, 2011), it appears otherwise: exposure to antagonistic viewpoints suppresses individuals' political participation, possibly through ambivalence. Future research can further examine political participation's respective relationships with diversity in interpersonal as well as mediated communication contexts. Researchers may also consider online news media and social media, where people can discuss diverse viewpoints with friends and family as well as strangers.

The results from panel analyses suggest that compared to audiences who spend more time viewing one kind of content, those with high liberal as well as high conservative content viewing will likely become more politically knowledgeable, but become no more politically active. This finding, however, is counterintuitive to the belief that individuals who consume antagonistic viewpoints should become better citizens—who are not only more politically informed but also more active (Dahl, 2000; Mutz, 2006; Napoli, 1999; Stroud, 2011). A post-hoc regression analysis of Wave 4 data suggested that weaker partisans were likely to consume more conservative content if they heavily consumed liberal content ($\beta = -.21$, $SE(HC) = .02$, $p < .01$, Figure 2). Stronger partisans, on the other hand, appeared to consume no more conservative content if they heavily consumed liberal content. Perhaps individuals' partisan *motivations* behind exposure to antagonistic viewpoints matter, and this may explain why people who heavily consume both liberal and conservative shows are found to be more politically knowledgeable but to be no more politically active. This finding raises questions such as whether it is important for people with knowledge to participate, and whether it is problematic for those with more knowledge to participate less. Future research can delve more into the theoretical question of

Figure 2
Interactive Relationship Between Liberal Content Viewing and Ideological Strength:
Predicting Conservative Content Viewing



through what psychological mechanisms exposure to antagonistic viewpoints bring about more political knowledge, but no more active participation.

Conclusion

This study revisited the assumed positive relationship between exposure to diverse viewpoints and benefits to democratic citizens, which governs media diversity policies. Exposure to diverse viewpoints may be positively related to political knowledge among light news viewers, whereas among heavy news viewers, exposure to diverse viewpoints may be positively associated with political participation. Exposure to both liberal and conservative viewpoints appears to lead to some benefits for democratic citizens, largely for political knowledge. Based on these results, policymakers may consider implementing civic education programs that emphasize the importance of seeking information from diverse and antagonistic sources to guide media audiences, although policies cannot exert control on individual audiences' exposure (Napoli, 2011). Civic education programs may include online tools such as *Newscube* (Park, Kang, Chung, & Song, 2009) and *Balancer* (Munson, Lee, & Resnick, 2013) which are designed to help people seek diverse views through the analysis of and recommendations for their news consumption habits.

The analyses have been limited in terms of their measures. Given this study's innate limitation as a secondary data analysis, measures such as political knowledge, and diversity measures based on TV shows, are neither optimal nor very sophisticated. To improve these exploratory diversity measures, it would be beneficial to devise new measures, incorporating new media such as the Internet and social media, where people can be exposed to more politically diverse content and discuss diverse viewpoints. It would also be worthwhile to include more comprehensive cognitive, psychological, and behavior-level indicators for democratic citizenship, such as political knowledge on policies, tolerance, and voting in future analyses. It is also important that more recent datasets are analyzed, and causal directions are further clarified between audiences' exposure diversity and democratic citizenship.³ These efforts would help us better understand the possible democratic benefits of exposure to diverse and antagonistic viewpoints delivered via media, and enlighten media diversity policymaking and planning of the media landscape for the public.

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Notes

1. More politically interested individuals tended to be more politically knowledgeable in Wave 2 ($r = .36$) and Wave 3 ($r = .26$). Also, more educated individuals tended to be more politically knowledgeable in Wave 2 ($r = .30$) and Wave 3 ($r = .24$, all correlations significant at the .01 level, 2 tailed).
2. For correlations among core variables, see Table 1.
3. For discussion on the strengths and weaknesses of OLS lagged dependent variable regressions, see Keele and Kelly (2006).

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Visual Attention to and Understanding of Graphic Program Advisories: An Eye-Tracking Study

R. Glenn Cummins, **Cam H. Stone**, **Zijian Gong**, and **Boni Cui**

Despite the use of television program advisories for more than 15 years, viewer understanding of these advisories remains problematic. This article summarizes 2 studies demonstrating the effectiveness of alternate graphic advisories in attracting viewer attention and more effectively communicating their intended meaning. Results indicated that younger viewers were more likely to correctly interpret the meaning of graphic advisories relative to the current text advisories. Eye-tracking data revealed that viewers also allocated greater attention to graphic advisories. Although participants interpreted graphic advisories as more restrictive than text advisories, viewers failed to demonstrate so-called “forbidden fruit” effects.

Since its inception, the television ratings system has been the subject of criticism, largely due to a lack of understanding of the advisories (Mifflin, 1997; Warren, 2002). The current television advisories are a combination of age-based guidelines (e.g., “TV-14”) paired with alphabetic content labels (e.g., V, FV, S, D, L). These advisories work with set technology known as the V-chip to restrict program viewing. However, surveys consistently indicate that viewer comprehension of these advisories is low.

Fewer than half of those surveyed can correctly identify the meaning of the current ratings (Rideout, 2004, 2007). Thus, for many viewers the advisories fail to achieve their intended purpose—to inform viewers or reduce ambiguity regarding program

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content, the so-called “information hypothesis” (Cantor, Harrison, & Krcmar, 1998, p. 190; Gerend, MacKinnon, & Nohre, 2000). In fact, the FCC deemed that “the V-chip is of limited effectiveness in protecting children from violent television content” (Federal Communications Commission, 2007, p. 14).

A more effective means of imparting information about program content may be through graphic or pictorial advisories. Studies suggest the effectiveness of graphic warnings on tobacco packaging in eliciting attention, changing attitudes, and communicating the dangers of smoking (Peterson, Thomsen, Lindsay, & John, 2010; Strahan et al., 2002). However, the informational utility of graphic advisories for media content has not yet been explored. Moreover, graphic advisories on media content could yield unintended consequences, such as increased attraction to the content among younger viewers (Bushman & Stack, 1996).

Research examining audience awareness, perception, or response to television advisories has grown silent as of late. However, concerns regarding exposure to media violence—including television content—persist, as reflected in the American Academy of Pediatrics’ 2016 statement on “virtual violence” (AAP Committee on Communications and Media, 2016). Given the demonstrated utility of graphic advisories in other contexts, this study seeks to revive investigation of television advisories by testing the informational utility of alternate, graphic advisories to both attract attention and describe program content. In two studies, one employing a college-student sample and one employing a sample of parents and children, novel graphic advisories were integrated into unfamiliar programs, and eye tracking was employed to examine differences in visual attention to the advisory relative to the current ratings. Viewer comprehension of the advisories was also recorded to examine the informational utility of this alternate format.

Literature Review

The current television advisory system is roughly 15 years old and was largely the product of the Telecommunications Act of 1996 (Mifflin, 1997). Concerns over television violence resulted in provisions within the Act mandating V-chip technology in televisions that allowed users to block access to select content. The technology is dependent upon self-imposed ratings, which appear in the top-left of programming after each commercial break. This system, known as the TV Parental Guidelines, represents a combination of age-based and content-based ratings (<http://tvguidelines.org>). The youngest age categories are TV-Y, appropriate for all children, and TV-Y7, directed at children ages 7 and above. Other advisories include TV-G, appropriate for general audiences; TV-PG, where programming contains material potentially unsuitable for younger children; TV-14, where programming contains material unsuitable for children under 14; and TV-MA, programming for mature audiences only. Programs with ratings of TV-PG, TV-14, and TV-MA can also contain alphabetic codes to denote specific content in the programming: graphic violence (V), fantasy violence, (FV), adult dialogue (D), explicit sexual activity (S), or crude language (L).

Content Advisories and the Information Hypothesis

Research probing audience response to advisories across different media has largely operated from one of two theoretical frameworks. One perspective employed psychological reactance theory (Brehm, 1966) to gauge whether restrictive advisories actually increase attraction to content, inducing so-called “boomerang” or “forbidden-fruit” effects (Bushman & Stack, 1996). Cantor et al. (1998) posed an alternate framework to understand viewer comprehension of and response to advisories—the information hypothesis, which posits that advisories “simply provide information about content” (p. 190). For parents, advisories can aid in selecting content appropriate for children (Bushman & Stack, 1996; Gerend et al., 2000). However, focus on advisories as informational tools highlights a recurrent critique of the television advisory system—a failure to effectively communicate the types of content found within programming (Abelman, 1999).

Surveys consistently reveal that parents, teachers, and others find age-based ratings systems much less useful than advisories that convey the presence of specific content forms (e.g., violence, sex, and language; Cantor, 1998; Federman, 2002). As a result, the system was amended in 1997 to incorporate the aforementioned symbols to denote specific content (Abelman, 1999). Despite these revisions, research consistently suggests that advisories fail to effectively communicate program content (Federman, 2002; Gentile, Maier, Hasson, & De Bonetti, 2011; Rideout, 2004, 2007). For example, according to survey data reported by the Kaiser Family Foundation, most parents said they had heard of the ratings but did not understand what they meant (Rideout, 2004, 2007). Only half of those surveyed understood that “V” indicated the presence of violence. Fewer than half recognized the meaning of symbols denoting sexual content (S), objectionable language (L), or suggestive dialogue (D). Notably, 8% of respondents misinterpreted the label “FV” to denote “family viewing,” not “fantasy violence” (Rideout, 2004). Thus, if the information hypothesis holds that advisories should serve as an informational tool, then one weakness of the current system is the “alphabet soup” that denotes content within associated programming and misunderstanding of advisories.

Informational Utility of Graphic Advisories

Given this lack of understanding, an alternate approach to imparting information about program content is the use of pictorial or graphic advisories to convey information due to their improved attention capture (Wogalter & Leonard, 1999) and ease of interpretation (Leonard, Otani, & Wogalter, 1999). For example, organizations such as the International Organization for Standardization and the American Institute for Graphic Arts provide globally recognized graphic symbols to denote numerous concepts, such as warnings or services. Much research testing the effectiveness of graphic advisories has invoked the pictorial superiority effect (Paivio & Csapo, 1973), which generally privileges pictorial imagery over words in terms of

recognition and memory. This perspective implicitly or explicitly undergirds the design and testing of effective advisories, warnings, or other strategic communication efforts across numerous contexts (e.g., warning labels or signage, Leonard et al., 1999; cancer education, McWhirter & Hoffman-Goetz, 2014).

The effectiveness of graphic advisories is supported by research examining graphic warnings on tobacco products (e.g., Hammond et al., 2007). For example, Peterson et al. (2010) reported greater visual attention and memory for graphic tobacco warnings compared with text warnings. However, one recurrent caveat surrounding the potential effectiveness of graphic advisories is how long such effects will persist (Peterson et al., 2010). Krugman and his collaborators (1994) employed eye tracking to demonstrate superiority of novel tobacco advisories in eliciting attention. However, they conclude that this effect should be examined via repeated exposure, as potential “wearout” effects could diminish attention (Krugman, Fox, & Fisher, 1999).

Hypotheses and Research Questions

Given both the logic and evidence from other contexts, graphic advisories should elicit superior attention and more strongly suggest the presence of specific program content. However, the consistency of the predicted superior attention across repeated exposures (i.e., so-called wearout effects) remains in question. These predictions are formally stated in the following hypotheses and research question.

H₁: Graphic advisories will elicit greater attention than the current text-based advisories.

RQ₁: Is this effect constant across repeated exposure?

H₂: Viewer comprehension of graphic advisories will be greater than text advisories.

H₃: Viewer expectations of program content will vary such that graphic advisories will more strongly connote the presence of objectionable content relative to text advisories.

Study 1 Method

A 2 (advisory format) X 3 (advisory repetition) X 2 (genre) mixed-measures experiment was conducted where viewers were randomly assigned to watch three segments from an unfamiliar sitcom or drama that employed either a novel graphic advisory or the current text advisory. Participants were recruited under the guise that the university’s public television station was seeking evaluations of BBC programs being considered for broadcast. During recruitment, no mention was made of program advisories.

Procedure and Apparatus

After participants granted informed consent, a researcher explained the eye-tracking apparatus, and each participant's point-of-gaze was calibrated using a standard 9-point calibration image. Gaze was recorded using an Eye-Trac 6 control unit with non-invasive remote desktop optics from Applied Science Laboratories. To accommodate the technical parameters of the hardware, participants were seated approximately two feet from a 19" LCD computer monitor. A small housing containing the camera optics was located just below the screen. The apparatus is a bright-pupil system that operates by directing infrared light into the participant's eye, which is reflected from the cornea to generate a corneal reflection (Duchowski, 2007). The theta between the corneal reflection and pupil center are used to continuously calculate point of gaze. GazeTracker (2015) software presented the stimuli and synchronized them with gaze data.

After obtaining satisfactory calibration, program playback began. Participants completed measures of anticipated program content after the first segment. A brief fade to black separated the two remaining segments. At the conclusion of the stimuli, participants completed measures of demographics, media consumption, and comprehension of program advisories.

Participants

A convenience sample of 145 undergraduate students recruited from communication courses at a large southwestern university participated in exchange for extra credit or to fulfill course research requirements. A majority of the sample was female ($n = 104$, 71.7%; male $n = 41$, 28.3%), and average age of the participants was 21.15 years ($SD = 3.55$). Due to technical malfunctions, gaze data were lost for three participants, resulting in a sample of $N = 142$ for those analyses.

Independent Variables

Advisory format was a between-subjects variable where participants were randomly assigned to view a program that employed either a text advisory used in U.S. television or a novel graphic advisory. Both formats noted the presence of coarse language. The advisory for the sitcom also referenced the presence of sexual situations, and the advisory for the drama referenced the presence of violence. All advisories were of equal size.

Novel graphic advisories were created to provide an iconographic representation of specific content. A pool of 30 candidate advisories were selected that employed various ideograms connoting sexuality, language, and violence (*1,000 icons*, 2006; Lehner, 1956). In a pretest, 34 research participants drawn from the same population as the study sample evaluated all advisories and rated how much each label connoted the various content categories. Advisories scoring highest with respect to the appropriate content categories (i.e., language, sex, and violence) were selected (see Figure 1).

Figure 1
Text and Graphic Advisories Indicating the Presence of Sexual Content and
Offensive Language.



Advisory repetition was a within-subjects variable operationalized by the insertion of the advisory in the upper-left of the program during the first 15 seconds of each program segment. Advisories were inserted and removed using a half-second dissolve.

To test for robustness of effects across multiple messages (Jackson & Jacobs, 1983), genre was included as a between-subjects variable. Because familiarity with the program could influence expectations of program content, two unfamiliar BBC programs were employed as stimuli, *The IT Crowd*, (comedy) and *M15* (drama). Only five participants reported having seen the programs (3.4% of the sample).

Dependent Variables

Attention to advisories was operationalized via two measures. Visual attention was gauged using a ratio-level measure of time viewing the advisory derived from eye

tracking. Eye tracking has become a valuable measure of attention due to its ability to track visual attention to specific elements within a message (Josephson, 2000). Given concerns regarding viewer awareness of program advisories, this technique permits a granular assessment of visual attention to advisories versus general program content.

Because ocular acuity is not evenly distributed across the eye, vision can be distinguished between what falls within someone's foveal versus peripheral vision (Jacob, 1995). The fovea rests at the center of the retina where visual acuity is the greatest. Because of this increased acuity, eye-tracking research posits that redirection of foveal vision to specific objects in the visual field—here program advisories—represents the overt act of attention allocation (Josephson, 2000). Duration of gaze is linked to cognitive processing of the specific element of interest (Josephson, 2000; Krugman et al., 1994). A common analytical technique in eye tracking research is to designate one or more areas of interest (AOIs) within a stimulus and then calculate the time foveal vision falls within that region (i.e., gaze duration) (Jacob & Karn, 2003). Here, the area of the screen occupied by the advisory was designated as an AOI, and gaze duration was a ratio-level measure of time viewing the advisory within each program segment.

A second measure of attention was a self-report item assessed after exposure. The final page of the posttest questionnaire presented participants with the advisory employed in their respective experimental condition and asked participants to indicate whether they had seen the advisory during the program. Response options were either "yes" or "no."

To assess comprehension of advisories, the final page of the posttest questionnaire presented the advisory employed in the program. To mask the purpose of the study and avoid confounding the repeated measurement of attention to advisories, this variable was assessed only once at the study's conclusion. In the questionnaire, participants were given half a page to indicate what they thought the advisory meant via open-ended response. Two research assistants coded responses for references to sexuality, violence, and language using nominal-level yes/no options for each content category. Intercoder reliability on a commonly coded subset of the responses ($n = 29$, 20% of sample) was acceptable for each category (all Krippendorff's $\alpha \geq .93$).

Items were adapted from past research to gauge anticipated program content (Oliver, Kalyanaraman, Mahood, & Ramasubramanian, 2007). Because anticipated content would be strongly influenced by program events, these measures were administered immediately after the initial program segment (i.e., opening titles). Instructions to the participants noted, "First impressions are important"; therefore it was crucial to assess their evaluation immediately after the initial segment. Participants indicated agreement (0 = *Strongly Disagree*, 10 = *Strongly Agree*) with a series of statements where adjectives described anticipated program content: erotic, arousing, and sexually explicit ($\alpha = .81$); scary, violent, aggressive, and disturbing ($\alpha = .84$); and language and profanity ($r = .68$). Responses were averaged into three measures of anticipated sexuality, violence, and language.

Study 1 Results

Advisory Format and Attention

A series of tests examined H_1 and the question related to advisory format, repetition, and attention. First, a chi-square test of association revealed a significant relationship between advisory format and whether participants reported noticing the advisory ($\chi^2(1) = 62.84, p < .001, \Phi = .66$). A majority of those who saw the text advisory failed to notice it ($n = 46, 63.0\%$), and only 37% ($n = 27$) reported noticing the advisory. In contrast, all but one of the participants who saw the graphic advisory reported seeing it ($n = 71, 98.6\%$).

A second test of H_1 examined differences in visual attention to the advisory. A mixed-measures analysis of variance (ANOVA) was conducted where advisory format and genre served as between-subjects factors, and the three repetitions served as a within-subjects factor. Gaze duration within each segment served as the repeated dependent variable. The test indicated no main effect for advisory format ($F(1, 138) = 2.62, p > .05$). However, results of the test of RQ_1 qualify this finding.

RQ_1 queried differences in attention to text versus graphic advisories across three repeated exposures. To answer the question, the Advisory Format X Segment interaction from the previous ANOVA was consulted. That interaction was significant ($F(2, 276) = 5.88, p = .003, \eta^2_p = .04$). Gaze duration was longer for graphic advisories in the first two segments. The opposite pattern was observed in the third segment, with text advisories receiving greater attention.

To probe the interaction, differences in attention as a function of advisory format were independently examined within each segment via a series of one-way ANOVAs. Results provide partial support of H_1 , as attention to graphic advisories was significantly greater than text advisories in two of the three segments (segment 1, $F(1, 138) = 30.76, p < .001, \eta^2_p = .18$; segment 2, $F(1, 138) = 4.41, p = .04, \eta^2_p = .03$). No difference in attention was found in the third segment ($F(1, 138) = .84, p = .36$). In sum, the interaction indicated greater attention to graphic advisories during the first two exposures, although no difference emerged for the third exposure.

Note that differences in attention as a function of advisory format and segment were qualified by a three-way Advisory Format X Segment X Genre interaction ($F(2, 276) = 18.88, p < .001, \eta^2_p = .12$). Examination of means suggests that for the comedy, graphic advisories consistently garnered greater attention across all three segments. Within the drama, graphic advisories initially elicited greater attention, but that difference was negligible within the third segment.

Advisory Format and Comprehension

H_2 predicted that compared to those who saw text advisories, participants viewing graphic advisories would report superior comprehension of advisory meaning. To

test the hypothesis, data from the open-ended interpretations of the advisories were examined. Chi-square tests of association examined the relationship between advisory format and references to three forms of content: language, sexual content, and violence.

Because advisories for both genres denoted objectionable language, data for the full sample ($N = 145$) were subjected to analysis in the first test. Results revealed a significant relationship indicating that graphic advisories better communicated the presence of objectionable language ($\chi^2(1) = 5.19, p = .02, \Phi = .19$). For viewers who saw the text label, slightly more ($n = 38$) failed to note that the advisory warned of objectionable language than those who did recognize the meaning of the symbol ($n = 35$). However, for those who viewed the graphic advisory, a majority ($n = 48, 66.7\%$) referenced objectionable language in their description, whereas only one third ($n = 24, 33.3\%$) failed to reference language.

Because of differences in the type of content referenced in advisories for the sitcom—which referenced sexual content—and the drama—which referenced violence, analysis of that data was conducted separately by genre. Regarding violence, results revealed a significant association of advisory format and comprehension ($\chi^2(1) = 7.33, p = .007, \Phi = .32$). Participants who saw text advisories were equally likely to reference ($n = 19, 52.8\%$) or fail to reference ($n = 17, 47.2\%$) violence. In contrast, participant responses indicate comprehension of the graphic advisory, with a large majority ($n = 29, 82.9\%$) referencing violent content and only 17.1% ($n = 6$) not making explicit reference to such content.

Regarding sexual content, data for those who saw the comedy program failed to reveal a significant relationship ($\chi^2(1) = 2.65, p > .05$), although frequencies were in the direction of the hypothesis. Examination of the distribution frequency revealed that for text advisories, a majority of participants failed to reference sexual content in their description of the label ($n = 22, 59.5\%$), with 40.5% ($n = 15$) correctly noting the advisory's meaning. Regarding graphic advisories, a majority mentioned the presence of sexual content ($n = 22, 59.5\%$), whereas the remaining 40.5% ($n = 15$) failed to make mention of sexual content when describing the advisory. Thus, results largely supported the hypothesis. In sum, for two of the three content categories denoted by the advisories, participants who saw the graphic advisories were more likely to correctly interpret their meaning.

Advisory Format and Anticipated Content

To examine how advisory format impact anticipated program content (H_3), independent samples t -tests compared participants' anticipated sexuality, language, and violence. Tests for all three measures failed to reveal between-groups differences (anticipated language: $t(143) = 1.50, p = .14$; anticipated violence within drama, $t(69) = .07, p = .95$; anticipated sexuality within comedy, $t(72) = .39, p = .70$). Thus, advisory format had no impact on viewers' anticipated program content.

Study 1 Discussion

As previously noted, two challenges limit the benefit of the current advisories—viewer awareness and understanding (Rideout, 2004, 2007; Warren, 2002). In the most recent survey data examining use of the advisories, the author concluded, “Most parents don’t understand the TV ratings system” (Rideout, 2007, p. 8). Study one results suggest the potential of graphic advisories to address this challenge as well as improve attention to the advisory.

Using past survey data as a comparison, graphic advisories better articulated to viewers their intended meaning. In open-ended interpretations of the advisories, viewers were more likely to reference the presence of both objectionable language and violence compared to those who saw the current advisory labels. For example, Rideout (2007) reported survey data revealing that, “Half (51%) [of those surveyed] know that ‘V’ stands for violence” (p. 9); that finding is remarkably close to the 52.8% of participants here who saw the text advisory and noted the presence of violence. In comparison, 82.9% of those who saw the graphic advisory employed here referenced the presence of violence. Thus, results suggest the superiority of graphic advisories in terms of universal comprehension. Likewise, graphic advisories also generally garnered superior attention, especially during the first two program segments.

Study 2

Advisory Comprehension and Forbidden Fruit Effects

Despite the value of these findings, one limitation is the need to explore the effects of graphic advisories within a different population of viewers. As previously noted, advisories serve multiple purposes and have varied outcomes beyond serving as an informational tool (Bushman & Stack, 1996; Cantor et al., 1998; Gerend et al., 2000). A second theoretical perspective undergirding the study of advisories is psychological reactance theory (Brehm, 1966), which Bushman and Stack (1996) posited as an explanatory mechanism within forbidden fruit theory. Reactance theory holds that by placing restrictive labels on content (e.g., “This film contains some violence. Viewer discretion is advised.”), audiences perceive advisories as a threat to freedom, and the viewer’s desire to restore freedom takes the form of increased attraction to restricted content (Bushman, 2006; Bushman & Stack, 1996).

As previously noted, one important distinction within the literature exploring advisory effectiveness is the difference between restrictive age-based versus content-based advisories (Cantor, 1998). Bushman and Stack (1996) reasoned that age-based advisories should elicit reactance due to their explicit age restriction. In contrast, information labels merely reduce ambiguity regarding program content without placing explicit age restrictions. Their results support this argument, as information labels failed to be interpreted as a threat to freedom relative to restrictive

advisory labels. They conclude, "it appears that it is possible to convey information about the violent content of a television program without inducing reactance in viewers" (p. 224). This suggests potential for graphic advisories to effectively convey information without eliciting reactance.

An essential step in exploring the utility of graphic versus restrictive text advisories is to examine not only their communicative effectiveness (i.e., the information hypothesis), but also to examine this across both parent and child viewers to assess potential reactance (i.e., forbidden-fruit effects). A second study was conducted employing a sample of parent and child viewers where attention to and comprehension of graphic versus text advisories was assessed analogous to Study 1. An additional goal of Study 2 was to assess whether age-based text advisories (i.e., "TV-14") are perceived as more restrictive and, in turn, elicit increased attraction to content. Therefore, in addition to the predictions of Study 1, Study 2 also tested the following:

- RQ₂: Is attention to graphic versus text advisories uniform for both parent and child viewers?
- H₄: Age-based text advisories will be perceived as more restrictive than graphic advisories, and this effect will be more pronounced among child viewers.
- H₅: Age-based text advisories will elicit greater attraction to programming than graphic advisories, and this effect will be more pronounced among child viewers.

Study 2 Method

A 2 (advisory format) X 3 (repetition) X 2 (episode) X 2 (cohort) mixed-measures experiment was conducted. Design was generally identical to Study 1 with the addition of an additional between-subjects variable, viewer cohort. Again, participants were recruited under the guise of evaluating BBC programming for the university's public television station.

Participants

A purposive sample of 98 parents and children were recruited from a local parent-teacher organization and extracurricular organization. For each parent-child pair, a \$40 donation was made to their organization as an incentive. Parents and children signed up for individual appointments to participate simultaneously in separate labs. Each dyad was randomly assigned to the same experimental condition.

Mean age of the parent sample ($n = 49$) was 44.06 years ($SD = 7.08$), and mean age of the child sample ($n = 49$) was 13.63 ($SD = 1.64$). More than half of the students ($n = 49$) were 12 or 13, just under the suggested age in the text advisory. A majority of the parent sample was female ($n = 35$, 71.4%; male $n = 14$, 28.6%). Gender was relatively even

within the child sample (male $n = 22$, 44.9%; female $n = 27$, 55.1%). Due to inability to calibrate gaze and technical malfunctions, gaze was not recorded for 15 participants yielding a sample of 84 for analyses of gaze data.

Independent Variables

Variation of advisory format and repetition was identical to Study 1. Due to the genre effect observed in Study 1, Study 2 employed only the sitcom. However, to again ensure robustness of effects across multiple stimuli, two different episodes were employed. Episode was initially included as a factor in statistical analyses. No main or interaction effects were observed, and it was removed from the design.

Study two also employed factorial variation of viewer cohort (parent versus child) based on the aforementioned parameters. Only 5 of Study 2 participants (5.1% of sample) had seen the program before, again ensuring a general lack of familiarity with the program.

Dependent Variables

Measures of attention and advisory comprehension were identical to Study 1. Measures of anticipated program content were edited to accommodate the child cohort. Two items ($r = .86$) gauged anticipated sexual content (e.g., "This program will probably contain sex"), and two items ($r = .74$) gauged anticipated language (e.g., "This program probably has bad words or 'potty talk'"). As in Study 1, these measures were administered immediately after the initial program segment. Attraction to programming was assessed via three items ($\alpha = .92$) (e.g., "I would like to watch more of this show").

Finally, perceived threat to freedom was assessed in posttest questionnaire by a single item, "This label is trying to stop me from watching the show" (Bushman & Stack, 1996).

Identical measures of visual attention from Study 1 were employed, and the apparatus was identical in each of the eye-tracking labs where children and parents participated in the study.

Study 2 Results

Attention to Advisories

Analogous to Study 1, two measures were used to examine the impact of advisory format on attention (H_1 , RQ_1 , RQ_2). First, a chi-square test of association revealed a significant relationship between advisory format and the dichotomous measure of whether viewers indicated seeing the advisory ($\chi^2(1) = 4.60$, $p = .03$, $\Phi = .22$). Of

the participants who saw a graphic advisory, twice as many reported seeing it ($n = 34$) than not ($n = 13$). In contrast, a relatively equal number of those who viewed text advisories reported seeing ($n = 25$) or not seeing ($n = 24$) it.

To examine differences in visual attention as a function of advisory format, a mixed-measures ANOVA was conducted where advisory format and cohort served as between-subjects factors, and the three program segments served as a within-subjects factor. As with the self-report measure, the test revealed the superiority of the graphic advisory in eliciting attention, as a main effect emerged for advisory format ($F(1, 80) = 28.63, p < .001, \eta^2_p = .26$). Across the three segments, viewers spent roughly a half-second longer ($M = .61, SD = .55$) viewing the graphic advisory compared to the text advisory ($M = .12, SD = .18$). Unlike Study 1, this effect was consistent across all three program segments (RQ_1), as no Format X Segment interaction emerged ($F(2, 160) = .23, p > .05$), suggesting that wearout effects were not evident during viewing.

To address RQ_2 , which asked if this effect was consistent for both parent and child viewers, the Advisory Format X Cohort interaction was consulted. It indicated that the effect of advisory format was uniform across both groups ($F(1, 80) = .62, p > .05$). Thus, both parents and children allocated significantly greater attention to the graphic advisories.

Advisory Format and Comprehension

As with Study 1, chi-square tests of association were conducted to examine the relationship between advisory format and whether participants' open-ended descriptions of the advisories explicitly referenced sexual content or language (H_2). Responses were also coded for references to age restrictions.

Regarding sexual content, the test revealed a significant relationship ($\chi^2(1) = 10.49, p = .001, \Phi = .33$). For participants who viewed graphic advisories, more referenced sexual behavior ($n = 31$) when describing the advisory than not ($n = 18$). Nearly the reverse pattern was observed among those who viewed text advisories. Most did not reference sexual content ($n = 34$), with fewer than half noting its presence ($n = 15$). This relationship was also examined independently for parents and their children. For parents, no relationship was detected ($\chi^2(1) = .98, p > .05$).

In contrast, the aforementioned pattern was observed among children ($\chi^2(1) = 13.44, p < .001, \Phi = .53$). Children who viewed the graphic advisory were more likely to correctly interpret its meaning and note the reference to sexual content ($n = 15$) than not reference it ($n = 9$). In contrast, an overwhelming majority of children who saw the text advisory failed to reference sexual content ($n = 22$), with only three referencing sexual behavior.

The same pattern of responses was observed regarding objectionable language. A test examining the entire sample was significant ($\chi^2(1) = 4.08, p = .04, \Phi = .20$). Again, more participants who viewed the graphic advisory referenced language in

their description ($n = 29$) than not ($n = 20$), and the pattern was reversed for those who viewed text advisories (no reference to language, $n = 30$; explicit reference to language, $n = 19$). Follow-up analysis examining the two cohorts independently revealed that this pattern was detected only for child viewers ($\chi^2(1) = 15.41$, $p < .001$, $\Phi = .56$). Twice as many children who saw graphic advisories referenced language in their description ($n = 16$) than not ($n = 8$). For those who saw text advisories, only three referenced language, with most failing to note that content ($n = 22$). For parents, no relationship was detected ($\chi^2(1) = 1.09$, $p > .05$).

Finally, references to age restrictions were also examined. The test examining the entire sample was significant ($\chi^2(1) = 48.81$, $p < .001$, $\Phi = .65$). Reverse patterns were observed between those who viewed the graphic versus text advisory. Only 8 made reference to age when describing the graphic advisories, with most failing to explicitly mention age ($n = 41$). In contrast, most who viewed the text advisory mentioned age restrictions ($n = 40$), with only 9 not mentioning age. This relationship held for both parents ($\chi^2(1) = 18.36$, $p < .001$, $\Phi = .61$) and their children ($\chi^2(1) = 27.31$, $p < .001$, $\Phi = .75$).

In sum, evaluation of open-ended descriptions of advisories reveals that viewers were more likely to correctly interpret the presence of sexual content and objectionable language. However, this was only evident among children, as no relationship was detected when examining parents' responses.

Advisory Format and Anticipated Content

Regarding advisory format and viewers' expectations of program content (H_2), two ANOVAs were conducted where advisory format and cohort served as fixed factors. The two dependent measures were anticipated sexuality and language.

Analogous to Study 1, the test detected no impact of advisory format on anticipated sexuality ($F(1, 94) = 1.29$, $p > .05$), with graphic advisory $M = 2.19$ ($SD = 2.47$) and textual advisory $M = 2.68$ ($SD = 2.00$). Moreover, no Advisory Format X Cohort interaction emerged ($F(1, 94) = .61$, $p > .05$). Thus, scores were consistent across cohorts.

Likewise, the test examining anticipated language was not significant ($F(1, 94) = 3.27$, $p > .05$), although means suggest that the textual advisory ($M = 4.22$, $SD = 2.35$) was slightly superior in communicating the presence of objectionable language relative to the graphic advisory ($M = 3.36$, $SD = 2.56$). Again, no Advisory Format X Cohort interaction emerged ($F(1, 94) = .92$, $p > .05$), indicating a uniform difference across viewing cohorts.

Advisory Format and Attraction to Content

To examine the impact of advisory format on perceived threat to freedom and attraction to the content (H_4 , H_5), a pair of two-way ANOVAs was conducted where

advisory format and cohort served as fixed factors. The test revealed a main effect of label style ($F(1, 94) = 13.58, p < .001, \eta^2_p = .13$). However, contrary to H_4 , group means revealed that the graphic advisory was perceived as more restrictive ($M = 3.52, SD = 2.90$) than the text advisory ($M = 1.88, SD = 2.56$). No Advisory Format X Cohort interaction emerged ($F(1, 94) = .54, p > .05$), indicating that this effect was consistent for both parent and child viewers. Thus, H_4 was not supported.

In the final test, attraction to content served as the dependent variable. The test failed to detect a main effect of advisory format ($F(1, 94) = 2.30, p > .05$), although group means did indicate the text advisory elicited slightly greater attraction to content ($M = 5.46, SD = 2.51$) than the graphic advisory ($M = 4.69, SD = 2.43$). No Advisory Format X Cohort interaction emerged ($F(1, 94) = 1.19, p > .05$). H_5 was not supported, as the text advisory that featured an age restriction did not yield increased attraction to programming relative to the graphic advisory.

Study 2 Discussion

Results of Study 2 generally support findings from the initial test of graphic versus text program advisories. Graphic advisories consistently elicited superior attention across repeated exposures in three program segments. Regarding their informational utility, graphic advisories better connoted the presence of both sexual content and objectionable language relative to text advisories with content codes (i.e., S, L). For example, only one-third (31%) of those who viewed the text advisory recognized that it implied the presence of sexual content, whereas 63% of those who viewed the graphic advisory correctly interpreted its meaning. However, results also suggest a concern regarding this superior comprehension. Among parents, for whom advisories are meant to serve as an informational tool, graphic advisories were no more effective than text advisories. In contrast, child viewers indicated superior understanding of the advisory. In this respect, graphic advisories may only serve to inform young viewers who could possibly be attracted to specific content (Bushman & Stack, 1996; Cantor et al., 1998). Thus, the informational superiority of graphic advisories may represent a double-edged sword.

This concern is somewhat assuaged by the finding that despite their superior comprehension, younger viewers did not report increased attraction to content paired with graphic advisories relative to the text advisory with an explicit age restriction. Surprisingly, graphic advisories were perceived as a greater threat to freedom. Although advisories with explicit age guidelines should yield increased attraction to the content (Bushman, 2006; Bushman & Stack, 1996), such forbidden-fruit effects were not found. Sadly, Bushman and Stack's (1996) conclusion still rings true: "The dearth of empirical literature on warning labels, in conjunction with the somewhat counterintuitive results reported here, underscores the practical import of this research and the need for additional research" (p. 224). Further study is needed to clarify why the greater restriction to freedom represented by the graphic advisory did not yield the theoretically supported outcome of increased attraction to

programming, especially given younger viewers' superior understanding of the graphic advisories. For example, Morgan (1996) argued that focus group research is particularly appropriate for explaining such unexpected findings as these. In addition, prolonged exposure may yield different outcomes, both in terms of attention and attraction to content.

General Discussion

Despite its use for more than 15 years, the television advisory system designed to help control exposure to potentially objectionable content remains problematic. The findings reported here generally suggest increased attention to and better understanding of graphic advisories relative to the current television ratings system. Thus, two limitations of that system (i.e., lack of understanding and attention) may be overcome through this approach.

However, the increased comprehension of graphic advisories failed to influence measures of anticipated program content. Across both studies, no differences were found in expectations of the types of content found within the coming program. One possibility is that the effect of the advisory on viewer expectations was too subtle to be detected. Second, the novelty of the programs employed may have prevented viewers from cognitively elaborating on the advisories, negating any potential effect on anticipated content. Although employing programming where familiarity was held uniformly low across experimental conditions allowed a purer test of the influence of advisories, this raises the obvious question of the impact of advisories when familiarity naturally varies. Interest in and selection of a program is driven by a host of viewer, structural, and message factors (Webster & Wang, 1992), and the influence of advisories and the content they denote is only one of many elements that shapes viewer expectations. Furthermore, partitioning these myriad sources of influence represents a formidable challenge. These represent empirical questions, and subsequent research both within and beyond the confines of the experimental laboratory is needed to test the potential influence of advisories on viewers' anticipated program content.

Limitations and Suggestions for Future Research

Despite the value of the findings reported here, they represent only the first step in reigniting scholarship surrounding the effectiveness of television advisories. The long-term impact of graphic advisories may only be determined through continued study, and advancing this research agenda may take several forms. Perhaps the most valid means of probing long-term effects of graphic advisories is to escape the research laboratory in favor of a more naturalistic environment, as this addresses a number of the limitations in the current design: potential wearout effects, the sample of research participants, and the lab environment.

First, a key question surrounding this research is whether the increased attention to graphic advisories is merely a result of novelty or if it would yield long-term impacts on attention and comprehension due to some intrinsic superiority of images over text (Peterson et al., 2010). Results presented here generally suggest that wearout effects did not occur within the context of this viewing session, as increased attention was consistent across three repetitions. Indeed, graphic advisories elicited superior attention in 11 of the 12 program segments screened across both studies. Nonetheless, this effect may disappear upon more prolonged exposure in naturalistic viewing contexts.

To continually elicit improved attention and avoid wearout effects, advisories would need recurrent testing over an extended duration (Krugman et al., 1999). Here, the variable nature of television content represents a point of differentiation where the effects of graphic advisories may differ from other contexts. For example, graphic advisories on tobacco products differ from television in that the product associated with former is relatively constant. In short, despite differences in types or brands of cigarettes, the product remains relatively uniform. In contrast, television programs are continually variable. Content featured in any given series or even episode within a series may vary. As such, the graphic advisory associated with the program will likewise vary, which may help combat long-term wearout effects.

An ambitious but valid test of such effects would require genuine, sustained implementation of an alternate advisory system in the field, which addresses any concerns raised by testing in an artificial lab environment. For example, such efforts could be pilot tested in select television markets, with self-report survey data gauging awareness and comprehension over time (e.g., Gerend et al., 2000). Furthermore, the effectiveness of an alternate advisory system could be buoyed by an accompanying communications campaign to educate viewers. In addition to the benefits of a more natural environment, a random-sample survey would yield a larger and more diverse sample of participants that permits statistical generalizability. Although Study 2 deliberately employed a purposive sample of adults and children, their attention to and comprehension of the advisories could differ from a probabilistic sample of the general population contacted through a survey. Again, the studies reported here represent the start of an ongoing program of research in this vein.

Another means of probing the long-term impact of graphic advisories is the development of not one but a series of graphics to denote the presence of objectionable content. Should wearout begin to be witnessed in more sustained testing, novel advisories could be deployed to combat such effects. For example, Krugman et al. (1999) warn that advisories must be continually revised to avoid wearout effects. The current study design naturally confounded graphic advisories with a novel advisory format. Thus, it cannot divine whether the observed effects can be attributed to the advisories because of their graphic format or because they are merely new and unfamiliar. Future research should affect factorial variation in both advisory format (i.e., text-based v. graphic) as well as novelty (i.e., familiar v. unfamiliar). If the superior attention demonstrated here is a function of mere novelty, then this could be combated by continued development of advisories that are

“targeted, novel, simple, and tested for effectiveness” (Krugman et al., 1994, p. 50). Such a design also permits a purer test of viewer comprehension of text-based versus graphic advisories. In addition, these studies tested only three of the content advisories currently employed. Development of advisories to communicate content such as fantasy violence (FV) or suggestive dialogue (D) remains open to examination.

Perhaps the most important outcome of the present study is the renewal of scholarly investigation of the utility of television advisories as a tool for parents in helping controlling access to content. Broadcasters, lawmakers, advocacy groups, and parents have all demonstrated past interest in employing program advisories as a means of informing viewers and protecting vulnerable audiences from exposure to potentially objectionable content, and the number of screens through which children access such content continues to grow (AAP Committee on Communications and Media, 2016). The introduction of graphic advisories offers promise for renewed examination of program advisories in general. Although past research in this vein has provided great insight into their effectiveness, the failure to directly assess attention to such advisories illustrates a challenge to understanding why effects may (or may not) occur. Although media scholars have examined attention in the context of other types of warnings or advisories (e.g., Krugman et al., 1994), it has not been applied to television advisories. The application of eye-tracking here provides new value by stressing the primacy of attention to advisories before subsequent outcomes such as cognition and perception (Wogalter & Leonard, 1999). These results suggest the potential benefits of a graphic advisory system in attracting attention and increasing comprehension and can reignite scholarship in this somewhat dormant area of research.

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