

Appendix for How Does Media Choice Affect Hostile Media Perceptions? Evidence from a Participant Preference Experiment

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1 A Motivational Model of Selective Exposure

Our (Arceneaux and Johnson, 2013) Active Audience Theory (AAT) that builds upon insights from the uses and gratifications literature (e.g., Cantril, 1942). Our model shares the view of many uses and gratifications scholars that audiences are active, not passive consumers. Viewers, readers, and listeners intentionally select themselves into audiences for programming that fulfill their needs and goals. They also do not take media content as face value. Audience members have the ability to engage content, accepting some messages and rejecting others. Nonetheless, our model departs from many uses and gratifications approaches in two important respects. First, the model does not assume that selectivity inexorably results in “imperviousness to influence” (Biocca, 1988). The shows people select to watch may indeed affect them. They just may not affect them in the ways outside observers would expect or even in the way intended by the creator of the media content. Rather, the influence of media content should be contingent on the characteristics of the viewer. Second, our AAT is a motivational model of selective exposure that recruits midlevel theories from political science and psychology to hypothesize about media affects given choice.

In the interest of parsimony, our model of selective exposure focuses on two internal motivations that shape media viewing decisions. First, there is the motivation to defend one’s pre-existing attitudes (Kunda, 1990), which we label the *partisan motivation*. Some individuals have a strong

need to defend their attitudes and others with a weaker need to do so. Much of the research on new media has focused exclusively on this dimension. Second, is the hedonic motivation to experience pleasure and avoid pain (Higgins, 1997), which we label the *entertainment motivation*. Some people seek out entertainment programming, viewing news as unpalatable medicine, while others actually enjoy keeping abreast of current events and politics. While one could conceive of a third dimension that captures the epistemic motivation to possess accurate beliefs (Kruglanski, 1989), we do not believe that level of complication would be useful at this stage.

To help generate hypotheses, we formalize the theoretical model with the help of Equation 1,

$$\begin{aligned}
 P^* &= \eta_p + \mathbf{T}\delta + \mathbf{S}\gamma + \epsilon_1 & (1) \\
 P &= \begin{cases} 0 & \text{if } P^* \leq 0 \\ 1 & \text{if } P^* > 0 \end{cases} \\
 E^* &= \eta_e + \mathbf{T}\rho + \mathbf{S}\omega + \epsilon_2 \\
 E &= \begin{cases} 0 & \text{if } E^* \leq 0 \\ 1 & \text{if } E^* > 0, \end{cases}
 \end{aligned}$$

where,

P^* = latent partisan motivation,

P = realized news choice, 1 = watch partisan news, 0 = otherwise,

E^* = latent entertainment motivation,

E = realized entertainment choice, 1 = watch entertainment shows, 0 = otherwise,

η_p = baseline partisan motivation,

η_e = baseline entertainment motivation,

\mathbf{T} = a matrix of personal traits that influence partisan and entertainment motivations,

\mathbf{S} = a matrix of situational factors that influence partisan and entertainment motivations,

$\delta, \gamma, \rho, \omega$ = vectors of coefficients for \mathbf{T} and \mathbf{S} ,

ϵ_1, ϵ_2 = disturbance terms.

P^* and E^* are continuous dimensions that capture an individual's propensity to consume partisan news and entertainment programming. Whether individuals actually choose to watch a given news or entertainment show, P and E , depends on their baseline motivation (see Kirzinger, Weber and Johnson, 2012) to watch those shows (η_p, η_e), as well as personal traits and preferences \mathbf{T} (e.g., conflict aversion, interest in politics, opinionation, etc.) and situational factors \mathbf{S} , (e.g., intensity of

media coverage, competitiveness of electoral environment, social contagion, etc.). We also suspect there is some amount of random noise involved in people’s media consumption (ϵ_1, ϵ_2).

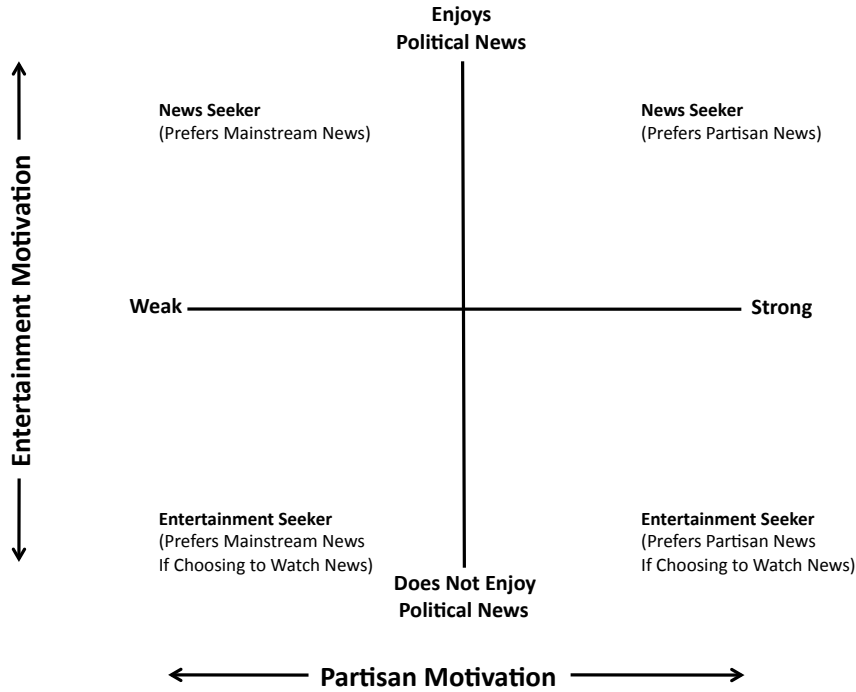


Figure 1: *Motivational Model of Selective Exposure*
 Notes: Reprinted from Figure 3.2 in Arceneaux and Johnson (2013).

At the moment, we are less interested in empirically modeling P^* and E^* and take these latent dimensions as given. Instead, we note that these two dimensions give rise to types of media consumers. Our model of selective exposure in Equation 1 is graphically depicted in Figure 1. The partisan motivation and entertainment motivation dimensions create a Cartesian space from which three basic types of television viewers emerge. People who enjoy news ($E^* > 0$) and possess a strong need to defend their partisan attitudes ($P^* > 0$) are more likely to be *partisan news-seekers* (top-right corner of Figure 1). People who enjoy news ($E^* > 0$) and do not possess a strong need to defend their partisan attitudes ($P^* < 0$) are more likely to be *mainstream news-seekers* (top-left

corner of Figure 1). In short, there are two kinds of news-seekers. In the bottom half of the table are *entertainment-seekers*, who prefer entertainment programming over any kind of news programming ($E^* < 0$). We could further break entertainment-seekers into those who would watch partisan news or mainstream news given the episodic motivation to watch news (e.g., some contextual factor, such as a close election, piques their interest). But, as we discuss in the conclusion, this complication is best left for subsequent research that investigates the dynamics of media consumption.

2 Expectations

Ultimately, we are interested in investigating the effects of media consumption *given media preferences*. In particular, we wish to understand how exposure to different kinds of news programming influences hostile media perceptions. Equation 2 decomposes hostile media effects by types of news (partisan and mainstream) and types of media consumers (partisan news-seekers, mainstream news-seekers, and entertainment-seekers).

$$\begin{aligned} \mathbb{E}[A] = & \mathbb{E}([\Lambda_{pn} + \alpha_{pn}p_{pn} + \gamma_{pn}c_{pn} + \tau_{pn}m_{pn}] + [\Lambda_{mn} + \alpha_{mn}p_{mn} + \gamma_{mn}c_{mn} + \tau_{mn}m_{mn}] \\ & + [\Lambda_e + \alpha_e p_e + \gamma_e c_e + \tau_e m_e]), \end{aligned} \tag{2}$$

where,

A = attitude toward media content,

Λ = baseline attitude toward media content,

α = weight measuring the amount of exposure to proattitudinal news shows,

γ = weight measuring the amount of exposure to counterattitudinal news shows,

τ = weight measuring the amount of exposure to mainstream news,

p = effect of exposure to proattitudinal programming,

c = effect of exposure to counterattitudinal programming,

m = effect of exposure to mainstream news programming,

Subscripts pn , mn , and e index partisan news-seekers, mainstream news-seekers, and entertainment-seekers, respectively.

Where viewers fall on P^* and E^* affect their exposure weights. In general, we would expect partisan news-seekers to be more likely than mainstream news-seekers and entertainment-seekers

to watch partisan news if given the choice ($\alpha_{pn} > \alpha_{mn}$, α_e and $\gamma_{pn} > \gamma_{pmn}, \gamma_{pn}$); mainstream news-seekers to be more likely than partisan news-seekers and entertainment-seekers to watch mainstream news if given a choice ($\tau_{mn} > \tau_{pn}, \tau_e$). This formulation allows the effects of partisan and mainstream news to be different for partisan news-seekers, mainstream news-seekers, and entertainment-seekers. In our previous work, we explore what happens when individuals are allowed to determine their own exposure. Here, we fix the extent to which people are exposed to different types of news (thus turning α, γ , and τ into constants) and focus on investigating differential effects among revealed types of viewers.

Partisan news-seekers tend to be ideologically motivated (Stroud, 2008) and it is among these individuals that we expect to observe a friendly media effect. If the mainstream news reports on politics in shades of gray, proattitudinal news shows tell partisans that the world is their preferred shade. Mainstream news-seekers, on the other hand, may eschew partisan news shows for a reason. These shows feature strident and boisterous discussion. Hosts and guests raise their voices, make tendentious arguments, and mock the opposing side. We anticipate that mainstream news-seekers find these antics more off-putting than the ideological benefit they receive from proattitudinal shows. The one thing we expect to unite partisan news-seekers, mainstream news-seekers, and entertainment-seekers is their distaste for counterattitudinal news. Oppositional shows key into intergroup psychology, activate outgroup threat, and motivate individuals to resist blatant attacks on their ingroup (Arceneaux, Johnson and Cryderman, 2013). Nonetheless, because people who do not expose themselves to the news tend to be more susceptible to its effects (Zaller, 1992), we expect that entertainment-seekers, relative to partisan and mainstream news-seekers, will evince stronger negative reactions to all news shows, irrespective of their ideological balance.

Below are our hypotheses stated more formally in the nomenclature of our empirical model displayed in Equation 2.

Conditional Friendly Media Effect Hypothesis:

$$p_{pn} < m_{pn}; p_{mn} \geq m_{mn}.$$

Oppositional Media Effect Hypothesis:

$$c_{pn} > p_{pn}; c_{pn} > m_{pn}; c_{mn} > p_{mn}; c_{mn} > m_{mn}; c_e > p_e; c_e > m_e.$$

Entertainment-seeker Susceptibility Hypothesis:

$$p_e > p_{pn}, p_{mn}; m_e > m_{pn}, m_{mn}.$$

3 The Participant Preference Experiment

The very thing that makes selective exposure interesting—self-selection into audiences—complicates the study of it. It calls into questions an observational research approach that simply compares the hostile media perceptions of partisan news-viewers to mainstream news-viewers to entertainment-viewers. If we observe differences among these groups of viewers, we cannot be sure that it represents the effect of the media they consume or if their inherent differences compel them to consume the media they do. Equation 2 helps clarify this point. To simplify the discussion, let’s consider the comparison of just two groups: partisan news-viewers to mainstream news-viewers. We survey a random sample of individuals in both news audiences, measure their hostile media perceptions, and estimate a mean for each group, $\mathbb{E}[A \mid \text{partisan-news viewer}]$ and $\mathbb{E}[A \mid \text{mainstream-news viewer}]$. After doing so, assume that we observe $\mathbb{E}[A \mid \text{partisan-news viewer}] > \mathbb{E}[A \mid \text{mainstream-news viewer}]$ —i.e., partisan news-viewers perceive more media hostility than mainstream news-viewers. One possibility is that exposure to partisan news shows creates hostile media perceptions: $p_{pn} > p_{mn}$. However, another equally valid possibility is that partisan news-seekers have a higher baseline level of media hostility than mainstream news-seekers: $\Lambda_{pn} > \Lambda_{mn}$. In fact, it could be that partisan news has no effect on partisan news-seekers, $p_{pn} = 0$, but because of the differences in baselines we observe $\mathbb{E}[A \mid \text{partisan-news viewer}] > \mathbb{E}[A \mid \text{mainstream-news viewer}]$.

The standard strategy in circumstances like these is for researchers to include “control” variables that account for baseline differences and isolate the effect of media exposure. The presence of selection bias vitiates the utility of this approach because using covariates that explain the selection process as control variables can actually increase rather than decrease bias (Achen, 1986; Arceneaux, 2010). What we really need is some way of constructing comparable groups of news-viewers and observing whether the effects of media content differ among those who generally prefer news or entertainment. Randomized experiments offer such an approach.

In a randomized experiment, study participants have the same probability of being exposed to different media content. For instance, in the study described in the next section, we randomly assigned subjects to four conditions: (1) exposure to a proattitudinal partisan news show, (2) exposure to a counterattitudinal partisan news show, (3) exposure to a mainstream news show, or

(4) exposure to an entertainment program. After viewing these shows, we measured hostile media perceptions A and estimated $\mathbb{E}[A]$ for each treatment group. Using Equation 2 as a template, we can decompose these expected values as,

$$\mathbb{E}[A_{\text{proattitudinal}}] = \mathbb{E}([\Lambda_{pn} + p_{pn}] + [\Lambda_{mn} + p_{mn}] + [\Lambda_e + p_e]) \quad (3)$$

$$\mathbb{E}[A_{\text{counterattitudinal}}] = \mathbb{E}([\Lambda_{pn} + c_{pn}] + [\Lambda_{mn} + c_{mn}] + [\Lambda_e + c_e]) \quad (4)$$

$$\mathbb{E}[A_{\text{mainstream}}] = \mathbb{E}([\Lambda_{pn} + m_{pn}] + [\Lambda_{mn} + m_{mn}] + [\Lambda_e + m_e]) \quad (5)$$

$$\mathbb{E}[A_{\text{entertainment}}] = \mathbb{E}([\Lambda_{pn}] + [\Lambda_{mn}] + [\Lambda_e]), \quad (6)$$

By randomly assigning individuals to these treatment groups, we ensure that each group has a similar distribution of characteristics (e.g., partisan tendencies, media preferences, etc.). In expectation, the baseline attitudes should be equivalent across groups (e.g., $\mathbb{E}[\Lambda_{pn} \mid \text{proattitudinal}] = \mathbb{E}[\Lambda_{pn} \mid \text{counterattitudinal}] = \mathbb{E}[\Lambda_{pn} \mid \text{mainstream}] = \mathbb{E}[\Lambda_{pn} \mid \text{entertainment}]$, and so on). Consequently, if we calculate the following difference, $\mathbb{E}[\Lambda_{pn} \mid \text{proattitudinal}] - \mathbb{E}[\Lambda_{pn} \mid \text{mainstream}]$, Λ_{pn} , Λ_{mn} , and Λ_e , cancel out, allowing us to estimate the overall effect of exposure to partisan news shows on hostile media perceptions, $\mathbb{E}[p_{pn} + p_{mn} + p_e]$.¹

This approach gets a bit closer to our goal. Now we are able to circumvent selection bias and isolate the causal effect of partisan news, but we want to go further and isolate the effects of exposure to news among partisan news-seekers, mainstream news-seekers, and entertainment-seekers. The *participant preference experiment* allows us to do just this.

4 Empirical Models

The empirical results in the article were derived from Ordinary Least Squares models in which the treatment indicators were regressed on measures of media hostility perceptions. These results are displayed in Table 1.

¹This expectation holds over an infinite number of randomized experiments. Because researchers typically only run one experiment, there is always the possibility that we observe an extreme draw from the sampling distribution of possible experiments. Frequentist null hypothesis tests offer a way to quantify the probability that we would have observed the differences among treatment groups if the underlying sampling distribution showed no effects on average (i.e., the null distribution).

Table 1: Empirical Models for Study 1 and Study 2

	Study 1			Study 2				
	Unfair	Unfair	Unfair	Hostile	Hostile	Opinion		
Mainstream News Exposure	1.296 (0.576)	1.412 (0.758)	1.712 (0.202)	2.383 (0.276)	3.107 (0.173)	3.637 (0.237)	-0.452 (0.221)	0.008 (0.305)
Proattitudinal News Exposure	2.000 (0.534)	2.938 (0.701)	1.357 (0.198)	1.711 (0.266)	3.493 (0.169)	3.782 (0.229)	-0.198 (0.221)	-0.009 (0.295)
Counterattitudinal News Exposure	2.387 (0.557)	3.353 (0.720)	2.862 (0.206)	2.773 (0.276)	4.209 (0.176)	4.393 (0.238)	1.117 (0.229)	0.993 (0.306)
Prefer Mainstream News	0.912 (0.901)	0.912 (0.901)	0.471 (0.379)	0.471 (0.379)	0.427 (0.323)	0.427 (0.323)	0.333 (0.415)	0.333 (0.415)
Prefer Partisan News	1.162 (1.167)	1.162 (1.167)	0.634 (0.350)	0.634 (0.350)	0.638 (0.302)	0.638 (0.302)	-0.183 (0.391)	-0.183 (0.391)
Mainstream Exposure \times Prefer Mainstream	-0.912 (1.364)	-0.912 (1.364)	-1.270 (0.511)	-1.270 (0.511)	-1.051 (0.437)	-1.051 (0.437)	-0.995 (0.562)	-0.995 (0.562)
Proattitudinal Exposure \times Prefer Mainstream	-1.738 (1.218)	-1.738 (1.218)	-0.542 (0.490)	-0.542 (0.490)	-1.103 (0.440)	-1.103 (0.440)	-0.035 (0.540)	-0.035 (0.540)
Counterattitudinal Exposure \times Prefer Mainstream	-0.978 (1.274)	-0.978 (1.274)	-0.023 (0.515)	-0.023 (0.515)	-0.683 (0.454)	-0.683 (0.454)	-0.558 (0.567)	-0.558 (0.567)
Mainstream Exposure \times Prefer Partisan	-0.019 (1.519)	-0.019 (1.519)	-1.369 (0.507)	-1.369 (0.507)	-0.984 (0.438)	-0.984 (0.438)	-0.835 (0.563)	-0.835 (0.563)
Proattitudinal Exposure \times Prefer Partisan	-2.563 (1.465)	-2.563 (1.465)	-1.269 (0.514)	-1.269 (0.514)	-0.375 (0.420)	-0.375 (0.420)	-1.320 (0.568)	-1.320 (0.568)
Counterattitudinal Exposure \times Prefer Partisan	-3.936 (1.535)	-3.936 (1.535)	0.140 (0.527)	0.140 (0.527)	-0.366 (0.441)	-0.366 (0.441)	1.036 (0.586)	1.036 (0.586)
Constant	3.000 (0.400)	2.588 (0.509)	3.127 (0.143)	2.897 (0.187)	2.190 (0.123)	1.957 (0.162)	4.515 (0.160)	4.487 (0.208)
R^2	0.152	0.248	0.194	0.210	0.454	0.463	0.062	0.093
F	7.18	3.36	66.00	19.17	228.17	62.54	18.26	7.44
n	124	124	825	808	827	810	827	810

Note: Ordinary Least Squares coefficients in cells; standard errors in parentheses.

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