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Computer-Mediated False Consensus: Radical Online Groups, Social Networks and News Media

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This study draws on survey data obtained from members in neo-Nazi discussion forums and builds on evidence that participation in these forums exacerbates false consensus, that is, overestimating public support for own views. This study goes further to test whether contacts with dissimilar offline social networks as well as exposure to ideologically dissimilar news media attenuate false consensus and its association with online participation. Contrary to predictions, politically dissimilar networks do not reduce false consensus among the analyzed sample. Exposure to ideologically dissimilar news media, on the other hand, results in more accurate estimates (main effect), but it exacerbates false consensus as resulting from participation in neo-Nazi online groups (interactive effect). Theoretical and practical implications are discussed.

Setting aside the debate as to whether the online public sphere exposes people to dissimilar views to a greater or lesser extent than the offline environment, ideologically homogeneous online groups do exist. Political chat rooms and message boards are more unanimous than other online

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spaces, in which politics comes up (Wojcieszak & Mutz, 2009). Also, the number of online hate sites increased by more than 60%, and there was "a marked upswing in the use of 'chat rooms' for communications among extremists" in 1999 alone (Southern Poverty Law Center, 1999, p. 1). Participation in such radical and ideologically homogeneous online groups exacerbates false consensus effect, or the tendency to overestimate public support for own perspectives (Wojcieszak, 2008). This, in turn, might make participants more vocal, publicize their cause, attract additional adherents, and affect the aggregate opinion distribution (Noelle-Neumann, 1974). Together, these processes may generate public support for such causes advocated by some online groups as racial violence or civil unrest (Sunstein, 2001).

Although this grim scenario has resonated with the broader public, it is incomplete because it does not account for participants' offline environment. This study departs from a premise that examining solely the effects exerted by online interactions may not comprehensively portray the complex processes affecting false consensus. Scholars have long recognized that interpersonal (Cooley, 1909) and mass-mediated communication (Tarde, 1898) are central to opinion formation and perception. Recently, researchers have also shown that false consensus is affected by exposure to dissimilar views. That is, encountering disagreement during offline and online political discussions (Wojcieszak & Price, 2009) as well as perceiving the media as biased against individual own position (Christen & Gunther, 2003; Gunther, Christen, Liebhart, & Chia, 2001) mitigate the tendency to project own views onto others. Yet few studies have addressed the interactions between online participation, offline communication, and information environment and their *joint* impact on public opinion perception, not least doing so when analyzing participants in radical and ideologically homogeneous online groups, a domain that may well be socially consequential.

Drawing on unique survey data obtained from participants in neo-Nazi online discussion forums and building on evidence that members in these groups exhibit false consensus (Wojcieszak, 2008), this study addresses these issues. It incorporates the scholarship on social networks and news media to test whether dissimilar offline social contacts and ideologically dissimilar news sources mitigate false consensus and its association with participation in neo-Nazi online groups. Do neo-Nazis whose interpersonal contacts and news media sources are dissimilar perceive public opinion on equal rights more accurately and are they less affected by online groups than their counterparts with unanimous networks and like-minded news media diet?

Before introducing the sample and addressing these issues, this article reviews studies on online groups influencing opinion perception. The subsequent section shows why it is also crucial to account for social networks

and news media and why exposure to dissimilar views from these two sources should impact false consensus and moderate the influence exerted by online groups.

ONLINE ENVIRONMENT: COMPUTER-MEDIATED INFLUENCE

Computer-mediated communication falls in between the personal and the mediated one (Walther, 1996), both of which affect individual views (e.g., Berelson, Lazarsfeld, & McPhee, 1954). It may also convey both normative and informational influence (Postmes, Spears, & Lea, 2000; Price, Nir, & Cappella, 2006), two factors that effectively shape attitudes and behaviors (Deutsch & Gerard, 1955). As a result, computer-mediated communication with online groups may influence not only participants' views but also their perception of public opinion. Quasi-experimental studies indeed find that opinion climate in structured and moderated online groups affects the arguments that members express and their postdiscussion positions (Price et al., 2006). Interviews with participants in an online discussion network also indicate that there is "public opinion formation on the networks: users may be taking a sample of opinions from other users" (Sachs, 1995, p. 83). Visitors to politically diverse online spaces similarly report gaining an accurate perception of opinion distribution, a "good sense of what 'the public' is thinking" (Stromer-Galley, 2003).

What about ideologically homogeneous online groups? Members in such groups may not gain such an accurate perception but instead exhibit false consensus effect, thinking that the public shares their perspectives. This is because false consensus results from selective exposure to consonant opinions (Marks & Miller, 1987), a mechanism that occurs within homogeneous online communities. Members self-select to groups that reinforce their perspectives, and although such self-selection "does not demand that we err in our estimates concerning the relevant populations . . . it does make such errors likely" (Mullen et al. 1985, p. 298). Also, consonant opinions are more readily retrievable from memory than dissonant ones (Tversky & Kahneman, 1973), exacerbating the extent to which participants would attribute their views to others. False consensus is also explained by the lack of information that would demonstrate to people that their personal opinions are not as prevalent in the population as people may believe (Marks & Miller, 1987), a condition met in unanimous online groups that provide reinforcing views and shield members from counterarguments.

Consistent with these notions, analyses reported elsewhere (Wojcieszak, 2008) find that participation in neo-Nazi online forums predicts overestimating public support for participants' positions. Without accounting for

online influences, the analyzed U.S. neo-Nazis overestimated the proportion of the population that thinks "we have gone too far in pushing equal rights" only by 6%, on average saying that 50% agrees versus 44% found by a national opinion poll (Pew Research Center, 2003). Engagement in neo-Nazi online forums, however, exacerbated the extent to which participants projected their perspectives onto others. Compared to those least engaged, the most engaged neo-Nazis overestimated public discontent with equal rights by an additional 21%, accounting for sociodemographics and ideological extremism. Given that the mean overestimation was 6%, the increase due to online participation was substantial.

This may have grave implications. Overestimating the degree to which others share individual beliefs may encourage people to publicly express their views (Noelle-Neumann, 1974), increase their intentions to engage in actions around various controversial issues (Bauman & Geher, 2002), and motivate them to carry out factual behaviors (Botvin, Botvin, Baker, Dusenbury, & Goldberg, 1992). Ultimately, as the research on minority influence suggests, expressing individual opinions and acting on them might affect the aggregate public because making a given perspective visible may incite others to voice similar views, increase their confidence, and attract additional adherents (e.g., Moscovici, 1985). Some scholars thus caution that radical and ideologically homogeneous online groups could prove socially destabilizing (Sunstein, 2001).

OFFLINE ENVIRONMENT: SOCIAL NETWORKS AND NEWS MEDIA

Although this alarming scenario is persuasive, focusing solely on the effects produced by online interactions can result in incomplete conclusions. Online and offline environments do not function in isolation, and participants in online groups also go about their daily lives offline. It is thus crucial to account for the offline environment when analyzing the effects of interactions in online groups. When analyzing the effects on public opinion perception, it is weakly tied social networks and news media that are especially relevant. After all, sociologists, political scientists, and communication scholars have long recognized that communication with interpersonal associates and mediated information from news sources affect public opinion perception.

Specifically, social networks that encompass weak ties—such as neighbors, work colleagues or fellow members in organizations—are crucial to opinion dissemination because they are the channels through which people encounter socially and ideologically distant ideas (Granovetter, 1973). Thus, interactions that extend beyond cohesive groups and that occur in settings in which weak ties converge, at work for example, may accurately reflect the

views present in the larger environment (Huckfeldt, Beck, Dalton, & Levine, 1995). Even when others do not voice their opinions, people may glean the general sentiment because people are also influenced by the views they *perceive* others have. However, political discussions often occur among like-minded individuals (e.g., Mutz, 2006). Also, neighborhoods are increasingly homogeneous, as people move motivated by such factors as income or race, which are associated with partisanship and ideology (Bishop, 2004; Gimpel, 2004). As a result, interactions with social networks may not accurately indicate what the general public is thinking.

What about the news media? News media expose people to views beyond their personal associations and provide information about local and national sentiment. Thus, the media affect how people perceive the economy, presidential candidates, election outcomes, and community norms (Ansolabehere & Iyengar, 1994; Bartels, 1988; Fleming & Thorson, 2008; Mutz, 1998; for a review, see Mutz, 1995). What about perceptual accuracy? Such journalistic norms as presenting two sides of an issue and illustrating a story with representatives of conflicted fractions within the public should guarantee that the audience receives diverse ideas and becomes "aware that alternative viewpoints are possible" (Mutz, 1998, p. 290). Yet people in general and especially those with strong political convictions tend to use news outlets that confirm their views, a tendency that is facilitated when multiple sources are easily available (Best, Chmielewski, & Krueger, 2005; Mutz & Martin, 2001; Stroud, 2008). Strong partisans thus visit their favored candidate's Web sites (Garrett, 2009) and select consonant outlets to learn about such issues as travel or the Iraq War (Iyengar & Hahn, 2009). That is, ideologically fragmented media environment, online and offline, facilitates exposure to like-minded sources, which may inaccurately reflect existing opinion diversity.

Politically Dissimilar Social Networks and News Media

Although it follows that social networks and the news media should influence the extent to which participants in radical and ideologically homogeneous online groups exhibit false consensus, social interactions and news exposure per se may not increase perceptual accuracy. It is rather *politically dissimilar* sources that should fulfill this goal. Why would exposure to dissimilar views from interpersonal associates and the news media contribute to more accurate perceptions and mitigate the association between online participation and false consensus?

First, politically dissimilar discussants and news outlets may offer a more accurate "sampling frame" for estimating public opinion distribution, minimizing the chances that people would base inferences about the general

opinion climate solely on the views shared within radical and ideologically homogeneous online groups. Exposure to dissimilar views from interpersonal associates and the news media could also render these views more salient and readily retrievable from memory, thus decreasing the likelihood that people will remember only the opinion climate within like-minded online groups. Further, encountering dissimilar perspectives offline, whether from immediate contacts or from the news media, may demonstrate to people that it is wrong to think that others hold views similar to oneself and to fellow participants in online groups (see Wojcieszak & Price, 2009).

Studies indeed find that people in diverse environments accurately perceive general opinion climate. Whites whose social networks were primarily White exaggerated segregationist sentiment in the public more than did Whites whose networks were racially diverse (O'Gorman, 1975). Also, respondents from a heterogeneous setting (the city) "came closer to accuracy in estimating the observed opinion distribution" on racial segregation than those from a homogeneous context (a church community; Breed & Ktsanes, 1961, p. 385). More germane here, Wojcieszak and Price (2009) showed that perceiving disagreement during political discussions with interpersonal networks and with participants in structured and moderated online groups reduced the tendency to attribute own strongly held views to the general population. Because the authors find these results with respondents recruited from a nationally representative panel, it is unclear whether political disagreement would have similar effects on extreme individuals, whose public opinion perceptions may have important social consequences. Also, Wojcieszak and Price (2009) do not account for exposure to dissimilar news media, which should also affect the tested associations.

Further underscoring the need to focus on dissimilar sources, research also shows that seeing news media as biased against individual own opinion affects—in complex ways—the tendency to project this opinion onto the general public. As aforementioned, Gunther and colleagues found that false consensus among partisan respondents increased when media coverage was seen as in line with personal views but decreased when media content was perceived as hostile. This perception tended to "cause estimates of public opinion, otherwise biased toward personal opinion by the projection effect, to converge towards the neutral position" (Gunther & Christen, 2002, p. 192; see also Christian & Gunther, 2003). At the same time, although hostile media perception led partisans to report greater discrepancy between themselves and the public, it did not altogether counteract projection (Gunther et al., 2001). Again, it is worthwhile to also examine whether similar patterns would emerge among extreme ideologues and to test whether exposure to ideologically dissimilar news media, not only perceived media bias, affects the association between like-minded interactions and the tendency to project

individual own views onto others. Extending the prior research, the following hypotheses are proposed:

H1: Interactions with politically dissimilar offline social networks will be related to more accurate public opinion perception and to attenuated association between participation in radical and homogeneous online groups and false consensus.
H2: Exposure to ideologically dissimilar news sources will be associated with lower false consensus and will decrease the relationship between false consensus and online participation.

METHOD

Data for this study come from an online survey conducted in summer 2005 of active participants in neo-Nazi online discussion forums.[1] The forums were identified by an online search and web-graph analysis using the Issue Crawler software.[2] Web-graph analysis yielded leading Web sites, pointed to others that were not found in the basic search, and assured that the sampling frame on the level of forums is comprehensive with 10 neo-Nazi forums. Participants' e-mail addresses and private messages (PM) were compiled by first selecting every second thread dating back to June 1, 2004, and then selecting every second topic given a random start. Every second e-mail address or, when unavailable, every second PM was then randomly collected from those topics to create a list of active participants, from which duplicate e-mails or PMs were later removed. When member directories were available, participants' nationalities were checked to exclude non–North Americans, to whom some questions would not be relevant.

An e-mail with a link to the online survey was sent to 300 sampled e-mail addresses and PMs, and 1 week later follow-up e-mails and PMs were resent. Of these, 112 resulted in fully completed interviews, including the open-ended questions about public opinion distribution, and are used in this analysis. An additional 70 resulted in partially completed interviews, which

[1]Participants in radical environmentalist online forums were also recruited. The data from this subsample are not analyzed here because online participation did not exert significant effects on false consensus (see Wojcieszak, 2008, for details). However, because a moderating effect might materialize in the absence of the main effect, all the analyses reported here were applied to radical environmentalists. Multivariate models thus tested the interactions between online participation and offline social network size and perceived dissimilarity and also news media dissimilarity. The interaction effects were not significant.

[2]The Issue Crawler builds the Web graph from URLs provided by a researcher, analyzes their outgoing links, and displays a cluster map depicting interconnections between the Web sites within a domain (Rogers & Marres, 2000).

are not included, and no response was received or the e-mail was returned for 118 contacts. The American Association of Public Opinion Research response rate is 39%. The sample was younger ($M = 35$, $SD = 13$) and more racially homogeneous (98% White) than the general population. Respondents were also better educated ($M = 16$ years), were mostly male (86%), and had a median income between $30,000 and $50,000.

False Consensus

Consistent with this study's conceptualization of false consensus as overestimating public support for one's own views, the difference scores between respondents' estimates, and the factual public opinion distribution were calculated. This approach addresses the recent methodological discussions and has several advantages. It reveals perceived differences with the general public, overlooked by measures that focus on differences between supporters and opponents. It also speaks to the discrepancy with the actual public opinion, showing whether respondents' estimates deviate from reality, information not tapped by measures that assess the difference between own and perceived opinions.[3]

Using standard wording from studies on false consensus, participants were asked, "In your opinion what percent of the American population agrees that we have gone too far in pushing equal rights in this country?" and "What percent of the American population agrees that we haven't gone too far in pushing equal rights?" These questions were adapted from Pew Research Center, which found that 44% of Americans agreed that we have gone too far in pushing equal rights and 56% disagreed (July 2003).[4]

[3]There is some disagreement as to what is meant by "false consensus," and researchers employ various measurement methods. Some assess whether the estimates provided by opponents and supporters differ, and hence the phenomenon traditionally "has no direct bearing on whether subjects will overestimate or underestimate the actual consensus for their own behavior" (Mullen & Hu, 1988, p. 334; e.g., Ross, Greene, & House, 1977). Other scholars test correlations between own and perceived opinion (e.g., Hoch, 1987; Marks & Miller, 1987), regress individual estimates on one's own attitudes (e.g., Fabrigar & Krosnick, 1995), or analyze the absolute difference between respondents' personal and perceived sentiment (e.g., Joslyn, 1999). Other studies employ approach similar to the one used here, juxtaposing respondents' perceptions with data on others' opinions (e.g., Fields & Schuman, 1976). Increasingly, researchers are concerned with perceptual accuracy, asking whether false consensus "lead(s) to estimation errors, and if so, which subjects are wrong?" (de la Haye, 2000, p. 570; see, e.g., Krueger & Clement, 1994). The operationalization employed in this study addresses these concerns.

[4]Because Pew asked whether respondents completely or mostly agreed/disagreed with the statement "We have gone too far in pushing equal rights in this country," Pew's distribution was dichotomized so that it could be subtracted from the estimates provided by the analyzed neo-Nazis. That is, *completely agree* and *mostly agree* responses were combined into *agree* and *mostly disagree* and *completely disagree* were collapsed into *disagree*, and the *don't know/refused* responses (3%) were randomly divided between the two categories.

The final measure was created by subtracting the factual public opinion distribution from respondents' estimates ($M = 6.01$, $SD = 24$).

Level of Participation in Online Groups

Using participation in online groups as an independent measure requires addressing such issues as the frequency and the amount of time spent online. These were assessed by two questions: "During the past week, how many times did you enter this forum and other forums that address political issues from a similar point of view?" (1 indicating *never* and 5 indicating *more than 7 times*), and "During the past week, how much time did you spend participating in this forum and in other forums that discuss political issues from a similar point of view?" (1 indicating *up to 30 minutes* and 6 indicating *5 hours or more*). To create a complete measure, an additional question asked, "When did you first start participating in this forum and in other forums that discuss political issues from a similar point of view?" (1 representing *less than 3 months ago* and 5 representing *more than 2 years ago*). The final measure averaged the responses (one factor, $\alpha = .76$, $M = 3.50$, $SD = 1.30$; range = 1.00–5.33, greater values indicate greater participation).

Perceived Political Dissimilarity of Offline Social Network

To capture weakly tied networks, the questions first primed respondents to think about the people to whom they feel somewhat close (see Boase, Wellman, Horrigan, & Rainie, 2006). Respondents were then asked about perceptual dissimilarity ("Thinking only about those people who you feel somewhat close to, how many of them in your opinion hold views on political issues that are DIFFERENT from yours?": 1 indicating *almost none* and 5 indicating *almost all of them*); exposure to dissimilar opinions ("... how often do they express views on political issues that are DIFFERENT from yours?": 1 indicating *almost never* and 5 indicating *almost always*); and, after a screening question about discussing politics, political disagreement ("... how often do you DISAGREE with them when you talk about politics?": 1 indicating *almost never* and 5 indicating *almost always*). The final measure was created by averaging these three items (one factor, $\alpha = .75$, $M = 2.9$, $SD = .97$, range = 1–5, greater values indicate greater dissimilarity).

Exposure to Ideologically Dissimilar News Media

This measure had to capture both exposure frequency *and* the sources' ideological leanings for each individual. Exposure was assessed by inquiring

about respondents' news media use, offline or online, in the past week (0–7), with the news sources presented on an extensive list (10 national network news, cable news, local TV news and programs; 6 daily newspapers; National Public Radio and 7 political talk radio shows; 6 news or current events magazines and an open-ended "other").[5] To account for the sources' ideological leanings, 16 graduate students from the Annenberg School for Communication at the University of Pennsylvania coded each as conservative (−1), neutral (0), or liberal (1) (intercoder reliability, $\alpha = .96$). The mean score was calculated for each source and the days of exposure to each source reported by each respondent were weighted by this score. The final measure ranged from −30 to +5, with the mean of −3.3. Negative values identify conservative and positive values indicate liberal media diet and greater numbers point to exposure frequency aggregated by sources.[6]

Ideological Extremism

To address the potential spuriousness between the tested associations, the survey also measured extremism. Respondents indicated, on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), their agreement with 10 ideology-specific statements. Examples include "Violence against non-white people is a natural ritual passage into true manhood," "All non-white people who are now in the U.S. should be deported and not allowed back into the country," and "I would mind if a close relative or family member wanted to marry a non-white person." The final measure averaged the responses (one factor, $\alpha = .76$, $M = 5.2$, $SD = 1.1$, range = 1–7, with 7 being most extreme).

[5]To determine that equal rights was on the news agenda around the time that the survey was administered, a LexisNexis search was conducted for terms "race OR racism OR affirmative action OR racial" used in headlines between May 30 and August 15, 2005. The search yielded more than 3,000 results.

[6]To illustrate, a person whose score was the maximum −30 could 6 days a week obtain news from five sources, all of which were consistently coded as conservative (e.g., listening to Rush Limbaugh, watching Fox News, and reading *The Weekly Standard*). A person whose media diet was represented by +5 could either 5 days a week be exposed to one source coded as liberal (e.g., watching *The Daily Show*, reading the *Atlantic*, or listening to Air America) or obtain news from seven liberal sources and two conservative outlets each week, among other variations. It needs to be noted that this measure presumes that a neo-Nazi exposed to liberal news sources has a dissimilar media diet. Selectivity research suggests that Rush Limbaugh or Fox News are more likely than *The Daily Show* or the *Atlantic* to appeal to the audience who place themselves on the right of the ideology-partisanship spectrum (e.g., Stroud, 2008), and the respondents in fact report greater exposure to sources labeled here as "conservative."

RESULTS

This study examined the relationship between participation in radical and ideologically homogeneous online groups and false consensus as contingent on political dissimilarity of participants' offline environment. As aforementioned, although the tested neo-Nazi were far from believing that the population as a whole or even its solid majority espoused racially intolerant attitudes, participation in radical and ideologically homogeneous online groups significantly predicted false consensus. That is, those participants who were very involved in neo-Nazi forums overestimated public discontent with equal rights to a greater extent than those less involved, and this relationship persisted after controlling for extremism and sociodemographics (Wojcieszak, 2008).

This relationship is important in its own right. Yet to comprehensively portray the various influences on public opinion perception, it is necessary to account for participants' offline environment. Do politically dissimilar weakly tied networks and exposure to ideologically dissimilar news media contribute to accurate public opinion perception and attenuate false consensus as related to participation in neo-Nazi groups? To test these main and interactive effects, a hierarchical regression model was constructed. It included demographics,

TABLE 1
Predicting False Consensus

	First block b	*Second block b*
Age	0.28 (.18)	0.18 (.19)
Education	0.63 (.84)	0.63 (.83)
Gender	1.01 (6.92)	–1.68 (6.97)
Income	–0.99 (1.46)	–1.33 (1.45)
Online participation	3.99* (1.99)	4.91* (2.03)
Extremism	5.00** (2.09)	5.28* (2.08)
Offline network dissimilarity	−0.92 (2.30)	−2.45 (2.39)
Exposure to dissimilar news media	−1.01** (.38)	−1.12** (.38)
First block R^2 (%)	30***	
Offline Network Dissimilarity × Online Participation	—	2.29 (2.11)
Exposure to Dissimilar Mass Media × Online Participation	—	0.64† (.38)
Incremental R^2 (%)	4.00	
R^2 (%)	34***	

Note. Entries are before-entry unstandardized Ordinary Least Squares regression coefficients with standard errors in parentheses. Incremental R^2 illustrate the changes after entering the interaction terms.

†$p \leq .10$. *$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

extremism, the level of online participation, offline network dissimilarity, and dissimilar news media exposure. The corresponding interaction terms were included in the second block (Online Participation × Offline Network Dissimilarity and Online Participation × Dissimilar News Media Exposure). To avoid multicollinearity, the interactions were formed from centered main component variables (Cohen, Cohen, West, & Aiken, 2003).

Table 1 details the results. Extremism and participation in neo-Nazi online groups were positively related to false consensus. The model found that offline network's perceived dissimilarity did not exert significant main or interactive effects, suggesting that false consensus in general and also as associated with participation in neo-Nazi online groups was not influenced by social contacts offline. This finding runs counter to expectations and indicates that for this particular sample politically dissimilar offline networks did not matter to accurate public opinion perception. Maybe the media mattered? As the table shows, exposure to dissimilar news media negatively predicted false consensus, also controlling for sociodemographics, ideological extremism, and offline social network dissimilarity. Further, the interaction term also approached significance.[7] Figure 1 illustrates these patterns, plotting the predicted means of estimated public opinion distribution, broken down by the level of online participation and ideological dissimilarity of news media.

As the figure shows, false consensus clearly increases with engagement in neo-Nazi online groups. Also, those neo-Nazis who obtain news from conservative sources overestimate public discontent with equal rights. Notably, online participation exacerbates the effects exerted by *like-minded* news diet, with those neo-Nazis who are highly involved online and who also turn to conservative media exhibiting the greatest false consensus effect. There are three noteworthy patterns regarding exposure to *dissimilar* news media. Those neo-Nazis whose news sources are liberal and whose online engagement is relatively low actually underestimate public support for their views. Exposure to such sources also appears to mitigate the overestimation resulting from online engagement, with the most engaged neo-Nazis who turn to liberal news assessing public opinion more accurately than their

[7]Although this effect is only marginally significant, the relatively small sample size may not provide sufficient statistical power to reach the more conventional significance levels. Also, small effect sizes in media effects studies are often due to measurement error, in that the Ordinary Least Squares estimates may underestimate the effects produced by news exposure by as much as 50% (Bartels, 1993). Although correcting for measurement error tends to result in stronger effects, errors-in-the-variables corrections have not been solved for interaction effects. This evidence suggests that the detected results may present *conservative* estimates of media effects on false consensus effect.

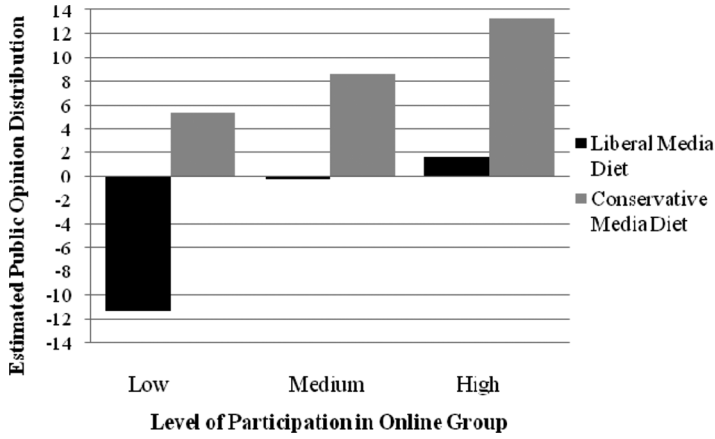

FIGURE 1 Predicted values of false consensus, by participation in online groups and ideological dissimilarity of news media. *Note*. Higher values indicate greater overestimation of public support for own position. Predicted values based on all the variables in the model are plotted. Low, medium, and high online participation levels were created by trichotomizing the continuous measure. Liberal and Conservative Media Diet categories were created by splitting the continuous measure at the median.

counterparts whose sources are conservative. At the same time, participation in neo-Nazi online groups offsets the effects exerted by exposure to dissimilar media, in this case resulting in accurate estimations.

DISCUSSION

Reports show that radical and ideologically homogeneous online groups proliferate and studies find that participation therein exacerbates false consensus. Overestimating public support may encourage participants to voice their views, ultimately making more visible calls for socially disruptive causes. This study aimed to provide a more complete picture and build on growing research on individual- and communicative-level factors affecting public opinion perception (e.g., Hoffman, Glynn, Huge, Sietman, & Thomson, 2007; Wojcieszak & Price 2009). This study departed from the premise that because members in radical and ideologically homogeneous online groups are not isolated from the offline environment, it is necessary to account for the various offline factors that influence opinion perception. This study thus incorporated the scholarship on interpersonal and impersonal communication to examine false consensus among members in neo-Nazi online forums. It tested whether contacts with politically dissimilar

social networks as well as exposure to ideologically dissimilar news sources contribute to accurate public opinion perception and attenuate false consensus resulting from online participation.

This analysis offers three central findings. First, contrary to expectations, having dissimilar offline networks does not shield participants in neo-Nazi online groups from false consensus. For the respondents under scrutiny, interactions with weakly tied interpersonal associates who hold dissimilar views do not lead to greater familiarity with what the general public thinks and do not attenuate the association between online participation and false consensus. These main and interactive results differ from those obtained by Wojcieszak and Price (2009), who found that encountering disagreement, online and offline, reduces the tendency among strongly opinionated individuals to project their views onto the general public. This difference may be attributable to the distinct disagreement and false consensus measures used in the two studies and/or to the differences between the analyzed respondents (national panel vs. neo-Nazis).[8]

In fact, research suggests that people with firm predilections do not objectively assess counterattitudinal evidence but rather perceive, interpret, and recall it in ways that are partial to preexisting views (see Nickerson, 1998; Sherif & Hovland, 1961). That is, although radical individuals with politically diverse networks that extend beyond closely knit groups may in fact encounter views that accurately reflect public opinion, these individuals may be immune to messages that counter their views and perceptions. Extreme participants in neo-Nazi online groups who interact with dissimilar people offline would thus discredit the dissenting information while readily accepting evidence consistent with their perception of sociopolitical reality.

The second notable finding regards impersonal influence. Exposure to like-minded news media exacerbates false consensus. Those neo-Nazis who turn to conservative sources consistently project their views onto the public. In contrast, dissimilar news diet thwarts false consensus and leads some neo-Nazis to underestimate public support for their views. This effect is consistent with the findings offered by Gunther and others (e.g., Christen & Gunther, 2003; Gunther & Christen, 2002; Gunther et al., 2001). Although this effect may plausibly be due to self-selected nature of such

[8]Alternatively, the different results may be due to the fact that the models presented here accounted for exposure to ideologically dissimilar news media, not examined by Wojcieszak and Price (2009). To shed light on which factor drives these differing results, the presented model was retested with *Offline Network Dissimilarity* and *Exposure to Dissimilar Media* entered separately. The main and interactive effects for offline dissimilarity were insignificant, suggesting that radical ideologues may differently respond to political disagreement than the more conventional citizens.

counterattitudinal exposure, it might also come from the fact that news media "are not subject to the more narrow geographic constraints of face-to-face relationships" (Mutz & Martin, 2001, p. 99) and from the relative difficulty to discredit the references to the aggregate opinion climate made in the national news. Ideologically dissimilar coverage might thus affect some radical ideologues, rather than be explained away, because it is a more authoritative source of information about public opinion than interpersonal associates.

Extending recent research on false consensus, this study also finds that participation in radical and homogeneous online groups exacerbates the effects exerted by like-minded news media: Those neo-Nazis who are highly engaged online and turn to conservative sources overestimate public support for their perspectives to the greatest extent. Online participation also counters the effects produced by dissimilar news media diet. Whereas those neo-Nazis who obtain news from liberal sources and are the least engaged online regard public opinion as unfavorable, interactions with like-minded neo-Nazis reverse this trend, making participants see greater public support, and—in this particular case—leading them to provide more accurate estimates. This finding is consistent with research on reference groups and suggests that opinions shared by an online group might reinforce media messages that support the group's position and may also serve as barriers against messages contrary to members' attitudes and perceptions. Traditionally, strongly knit face-to-face contacts have been seen as serving these roles (e.g., Lazarsfeld, Berelson, & Gaudet, 1944). Now, however, computer-mediated associations with online groups may have emerged as another factor that amplifies or counteracts the influence of news media coverage.

Another result is noteworthy: Extreme neo-Nazis perceive far greater public support for their positions than their less extreme counterparts. Evidence that speaks to the association between opinion strength and false consensus has been mixed. On one hand, because strong views are easily accessible, often used when making probability estimates (Tversky & Kahneman, 1973) and bias information processing (see Nickerson 1998), strongly opinionated individuals may be especially inclined to project their views onto others (Wojcieszak & Price, 2009). On the other hand, extremists tend to be knowledgeable about the issue they consider important and closely monitor their sociopolitical environment (Krosnick, Boninger, Chuang, Berent, & Carnot, 1993), factors that may increase their familiarity with public opinion (Christen & Gunther, 2003; Fabrigar & Krosnick, 1995). Consistent with the first explanation, this study finds that the most extreme neo-Nazis are especially likely to overestimate public support for their views. This result can also be explained by the somewhat controversial research on political ideologues, which finds that conservatives often manifest cognitive

styles such as dogmatism, rigidity, and uncertainty avoidance (Jost, Glaser, Kruglanski, & Sulloway, 2003). If so, such characteristics might predispose the most extreme neo-Nazis to project their perspectives onto others.

As with any study, this comes with several limitations. First, because the data are based on a highly unconventional sample, the conclusions can only speak to active participants in some online groups and any generalizations beyond the analyzed radical and homogeneous neo-Nazi online communities are problematic. In other words, although the findings are important partly because the data were obtained from unusual respondents who are typically hard to investigate, these findings tell us little about the tested relationships among more conventional samples. Also, this study cannot assess whether those participants who decided to complete the questionnaire differ in some important ways from those neo-Nazis who did not take the survey and from the general population being surveyed. Inasmuch as there is some systematic bias, the results could be partly due to some idiosyncratic characteristics of the final sample.

Moreover, the cross-sectional design limits the ability to make a strong inference about causal direction. Even though there is an association between online participation and false consensus, this association does not provide evidence for causality. It is possible that those who perceive population opinions in a particularly distorted way disproportionately turn to ideologically homogeneous online groups. Although there are theoretical reasons to suppose that such groups exacerbate false consensus, longitudinal and experimental research is needed to establish the causal direction.

Another limitation is due to the reliance on self-reports of political dissimilarity of offline social networks. Perceived dissimilarity might not reliably indicate factual differences, especially that it too may be subject to the misperceptions of the extreme respondents, and the self-reported measures cannot be validated with data on discussants' opinions. Therefore, the conclusion that offline social networks do not matter to public opinion perception needs to be interpreted cautiously and should not be extended to offline interactions among more conventional Internet users. Causality aside, because the findings on exposure to ideologically dissimilar news media are not based on perceptual dissimilarity, they may be regarded as more reliable.

Further, this study tested public opinion perception on equal rights only. This narrow focus was due to the way in which false consensus effect was measured. That is, information on factual public opinion distribution was necessary to create the final difference scores. Although issues such as interracial marriage or belief in the Holocaust may be more salient to neo-Nazis than equal rights and although including these issues would broaden the claims made by this study, no information was available on the general public's opinion on these topics. Studies that rely on more ideology relevant issues are needed not only to replicate the presented findings but also to shed

light on whether and to what extent false consensus effect depends on topic specificity and its salience to the studied population.

Also, this study cannot determine whether the detected associations hold primarily for online groups or also emerge in offline contexts. Similarly to unanimous online communities, offline political organizations may also reinforce members' biases and increase their susceptibility to false consensus. Assessing the potentially differential effects exerted by offline and online interactions is a logical next step that would add to the literature on opinion perception.

Finally, the findings on participants in discussion forums might not apply to those utilizing chat rooms or other computer-mediated communication. To account for this, attempts were made to recruit visitors to neo-Nazi Yahoo! and Internet Relay Chat (IRC) chats. Because those online spaces are less populated, the number of respondents was insufficient to conduct analyses.[9] In a similar vein, this study does not account for the specific ways in which the respondents utilized the forums (e.g., commenting on threads or starting own topics) and for the recent developments in new communication technologies (e.g., Twitter or social networking). Future research is needed to replicate the presented results in the current media environment and to assess whether false consensus is affected by differential forum use and the increase in online discussion venues.

Despite these limitations, this study contributes to the literature on false consensus and the new media environment and has implications on both practical and theoretical levels. It shows that active participation in some online groups might bias members' estimates of the public opinion climate regardless of the dissimilarity of their social and informational environment offline. Perhaps radical and ideologically homogeneous online groups have emerged as an additional factor that affects individual perception of sociopolitical reality, a factor that—for some people—might be more important than interpersonal influence from immediate associations and than impersonal influence conveyed through news media. To determine whether this is the case, scholars should scrutinize the relative importance of personal, impersonal, and computer-mediated influences on individual attitudes and behaviors. It would be worthwhile to test whether computer-mediated influence also dominates over the other two among more conventional online groups or whether this effect primarily emerges among online communities that provide a self-selected refuge for extreme ideologues.

[9]Members of such groups are not likely to differ from participants in discussion forums because there is a high degree of overlap, with neo-Nazis utilizing both forms of computer-mediated communication. In the recruitment process, many individuals voiced that they had already been contacted through discussion forums or chats rooms. Also, many forum postings invited members to enter a specific IRC channel.

At the same time this study also shows that participants in radical and ideologically homogeneous online groups do not estimate general opinion climate by thinking solely about an aggregate phantom public and about the views shared within online communities. Those internet users also rely on information gleaned from news media. This indicates that research on the impact exerted by online groups should concurrently analyze the offline environment, in which Internet users are embedded and which also affects their opinions and perceptions. It is scholarship that accounts for these various individual-, social-, and information-level factors that is especially apt to contribute a comprehensive analytic framework which accurately portrays the complex processes involved in public opinion formation and perception (see Hoffman et al., 2007; Wojcieszak & Price, 2009). After all, public opinion scholars and practitioners have aimed to understand precisely these processes, whether among radical participants in online groups or among conventional citizens.

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