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**What About the People? Impact of Ideologically Homogeneous Groups on
Pluralistic Ignorance**

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Introduction

A definition of a public as “the collective entity that organizes ... into interacting groups and factions representing *different viewpoints*” (Price & Oshagan, 1995, p. 195, emphasis added; see Blumer, 1946, 1948) might not be applicable to the online environment, as the structural features of the internet (for a review, see Lessig, 2001) allow for selective exposure to consonant content and facilitate the emergence of ideologically homogeneous online communities (Sunstein, 2001; Van Alstyne & Brynjolfsson, 1997). Participation in such online groups biases the process of within-group opinion sampling and might result in members’ tendency to overestimate the proportion of the population that supports their positions. This, in turn, decreases the fear of isolation and increases the likelihood that members will publicly express their opinions (McKenna & Bargh, 1998).

The act of self-expression resulting from this false consensus might affect global environment of opinion, increase others’ willingness to voice similar views, and attract additional adherents (Noelle-Neumann, 1974; Moscovici, 1985), who in turn “see majority support in current public opinion [and] are more likely and willing to express their position” (Taylor, 1982, p. 330). It follows that participants of ideologically homogeneous online groups might gain public support. When their views favor racial violence, pluralistic ignorance might have conspicuous effects on democracy despite the relatively small number of people who participate in such online groups. Therefore, “if perception of the distribution of opinion in the social environment is a ... part of the

process of public opinion formation, then it is of some interest to know whether or not people perceive the environment accurately” (Taylor, 1982, p. 312).

Consequently, this study contributes to the literature and research by assessing the effects of participation in ideologically homogeneous online discussion spaces on the phenomenon of pluralistic ignorance, i.e. members’ misperception of the distribution of public opinion. It scrutinizes whether or not the theory on pluralistic ignorance applies to participants of such groups, specifically whether they overestimate the proportion of the population that favors their perspective. This study also goes a step further. It incorporates the theory on the importance of social networks (Huckfeldt & Sparague, 1991, 1995) and of news media (Mutz & Martin, 2001) to opinion formation and perception and tests whether the extent of public opinion misperception is contingent on the size and heterogeneity of participants’ offline social networks and on ideological dissimilarity of their news sources. The data analyzed was obtained from over 300 participants of neo-Nazi and radical environmentalist online discussion forums identified by web-graph analysis (www.issuecrawler.net). Before explicating the potential of personal and impersonal communication for moderating the degree of misperception, the paper outlines the theoretical grounding of the study.

Computer-Mediated-Opinion

Two forms of communication have been generally regarded as influencing opinion formation: personal contact with individuals and groups (e.g. Berelson, Lazarsfeld & McPhee, 1954; Katz & Lazarsfeld, 1955) and mass-mediated contact with

ideas beyond the confines of one's personal association (e.g. Mutz, 1998). The internet introduces new analytic dimension, computer-mediated-communication (CMC), which falls between personal and mediated communication, being both direct and mediated. Participants of synchronous online discussion spaces interact with each other in "real time," and members of asynchronous forums respond to each other's utterances creating a dialogue. They are however not personally exposed to their interlocutors and do not receive visual and auditory cues that complement verbal communication. There are also two forms of social influence on one's opinion, normative and informational (Deutsch & Gerard, 1955; for a review see, Price & Oshagan, 1995). Computer-mediated-communication conveys both. This is because CMC is a constituting factor of online communities that are important in information (Plant, 2004; Wellman & Hampton, 1999) and attitude (Nip, 2004; Wellman & Gulia, 1999) transfer. Thus, online groups might become reference groups that mediate both members' perception of public issues and the influence of public opinion on their members.

Indeed, research evidences that online groups play a role in opinion formation, expression and perception. Interviews with participants of a discussion network, PeaceNet, 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), assessing and learning by a "dynamic exchange of opinions" (p. 96). Also, participants of a heterogeneous discussion space, Usenet, report gaining an accurate perception of opinion distribution, a "good sense of what 'the public' is thinking" (Stromer-Galley, 2003, p. 13) and a "general sense of how the rest of the country feels or looks at an issue" having the "opportunity to survey the 'public opinion' or 'mood' of the country" (p. 11). Certainly,

this process is different within homogeneous groups. Since, according to the concept of homophily¹ individuals select online acquaintances based on similarities and “seek out groups of like-minded others where member’s ... values and prejudices are reinforced rather than challenged,” some online groups are ideologically homogeneous (Dahlberg, 2001, p. 18). Interaction with them may alter participants’ perception of public opinion on issues discussed and increase their pluralistic ignorance. Why this is likely to be the case is briefly outlined below.

Pluralistic Ignorance

“Pluralistic ignorance” is a cognitive distortion regarding “the ideas, sentiments, and actions of other individuals” (O’Gorman, 1975, p. 314) and the distribution of opinion generally (Merton, 1968). It indicates situations in which the minority position is incorrectly perceived to be the majority position and vice versa (for a review see, Glynn, Ostman, & McDonald, 1995). When individuals’ views influence their perception of public opinion the resulting pluralistic ignorance is related to “looking-glass perception,” a concept that indicates the extent to which people believe others agree with them. Taylor (1982) observed that the majority and the minority alike perceived support for their opinions and O’Gorman (1975) found that those who disliked blacks were more likely (average 66%) to impute segregationist values to others than those with favorable attitudes towards blacks (average 35%). Looking glass perception is explained by a “psychological tendency to be certain of one’s opinions and to attribute to others the

¹ Homophily is a principle that a contact between similar people occurs at a higher rate than among dissimilar people. “The pervasive fact of homophily means that cultural, behavioral ... or material information that flows through networks will tend to be localized” (Mc Pherson, Smith-Lovin, & Cook, 2001, p. 416). Lazarsfeld & Merton (1954) identified two types of homophily: status homophily (based on informal, formal, or ascribed status) and value homophily (based on values, attitudes, or beliefs).

tendency to agree with oneself” (Taylor, 1982, p. 318), and by the absence of counter forces that could prove this wrong (see, Glynn, Ostman, & McDonald, 1995).

Both conditions are met in ideologically unanimous online groups: participants’ positions become more extreme (see, Turner, 1982; Wojcieszak, 2005) and thus they are more confident in their judgments than individuals with moderate positions (Johnson, 1955). Also they share ideological perspective and counterarguments that could challenge it are not voiced. It follows that participants will look at the aggregate public opinion on an issue discussed online in a “looking glass manner.”

Another form of pluralistic ignorance is “false consensus,” i.e. tendency for individuals to “see their own ... choices and judgments as relatively common,” and as shared by larger proportion of people than it is in reality (Ross, Greene, & House, 1977, p. 280). False consensus has been found with regard to perception of a range of behaviors, e.g. paying a traffic ticket, and issues, e.g. leaning towards left or right (Ross, Greene, & House, 1977). Also, meta-analysis of 115 tests of false consensus hypothesis conducted by Mullen et al. (1984) demonstrated that the effects were highly significant and of moderate magnitude. According to Ross, Greene and House (1977), “false consensus” results from ego-defensive or dissonance-reducing motivations to “foster and justify the actor’s feelings that his own ... choices are appropriate” (p. 297) and from selective exposure and recall of opinions consonant with one’s views.

Participation in homogeneous online groups meets these criteria, as members’ selectively expose themselves to consonant views and although “exposure to biased sample of people ... does not demand that we err in our estimates concerning the relevant populations ... it does make such errors likely” (Mullen et al., 1984, p. 298). Also,

consonant opinions of other members might be readily retrievable from memory, further increasing the likelihood of participants' overestimation of the proportion of the population that supports them.

Pluralistic ignorance is intensified by opinion polarization, as individuals who are strongly invested in an issue overestimate the support of others to a greater degree (Ross, Greene, & House, 1977; Taylor, 1982). Experimental research that has demonstrated the tendency of insulated groups to polarize toward more extreme positions in the direction to which their members were originally inclined (Myers, 1975; Turner, 1991) applies to online groups. Actually the internet might intensify this tendency, as anonymity in online interactions decreases perceptions of differences among individuals, leads to over-accentuation of group's homogeneity and increases conformity toward a group norm (Postmes, Spears, & Lea, 1998). Also, such groups lack bipolar distribution of arguments and do not connect to opposing views, by hyperlinks for example, the confrontation with which could challenge groups' opinions (Hill & Hughes, 1998, 1997). This likely increases participants' misperception of others' views and indicates that opinion strength might account for the relationship between online interactions and misperception. The research on online communities, however, suggests that online interactions independently impact misperception.

The above review leads to proposing the following hypotheses:

H1: Participants of ideologically homogeneous online discussion groups will misperceive the distribution of public opinion on an issue discussed online. Specifically, they will overestimate the proportion of population that favors their perspective.

H2: The higher the level of participation in ideologically homogeneous forums the greater the degree of misperception of public opinion distribution, also controlling for strength of participants' political opinions.

Offline Environment: Mediating Computer-Mediated-Influence

The above argumentation that connects the research on pluralistic ignorance to the online groups does not account for participants' offline environment, and is therefore incomplete as the internet is only a "part of a much larger fabric of communication and social interaction," therefore "focusing exclusively on the online world can be misleading" (Katz & Rice, 2002, p. xxi). Moreover, opinion formation and perception is not a triangular process (issue– online activities –response/assessment), but rather a quadrilateral one (issue– online activities – offline activities –response/assessment). It is thus crucial to account for the offline environment of online groups' members to address a central question: How can it moderate the effects of online groups on misperception? Such influence might come from two major factors. The first is offline social networks and the second is news media, and the theory of both will be briefly outlined.

Social Networks

Weak ties, where one's contacts are not tied to one another, are crucial to dissemination of public opinion (Granovetter, 1973, 1982). Such ties can include neighbors, work colleagues, members of organizations, and attendants of the place of worship and are the channels through which ideas socially and ideologically distant from individuals may reach them. It follows that the fewer indirect contacts people have the

more encapsulated they are in terms of knowledge of opinions beyond close networks. In contrast, “when social communication extends beyond socially cohesive groups, the flow of information should reflect ... opinion distribution (in the larger environment)” (Huckfeldt, Beck, Dalton, & Levine, 1995, p. 1025).

This is because communication occurs beyond the boundaries of cohesive groups, as people discuss politics and convey information through casual interaction with weak ties. Such communication is beneficial to one’s awareness of general opinions, as it exposes to novel and conflicting views. Also, as McLeod and associates (1999), Huckfeldt and others (1995, 1984) and Huckfeldt and Sparague (1995) found, those with large networks discuss politics more frequently. And since large networks are more heterogeneous, exposure to different views has been found to be inversely related to closeness to a discussant (Mutz & Martin, 2001).

Also those who do not discuss politics are exposed to opinions in the context of divergent and environmentally generated opinion distributions (Huckfeldt, 1984; Huckfeldt, et al., 1995). Thus even individuals who select their groups based on attitudinal similarity are exposed to diverse opinions in broader uncontrolled setting of interactions with others. The larger the size of this weak network the greater its heterogeneity and the likelihood of exposure to dissenting positions (McLeod et al., 1999). People might however not encounter diverse opinions when others do not voice them. But “(i)n some instances, what is not said may be just as important (or even more important) than what is said” (Glynn, Ostman, & McDonald, 1995, p. 259) as people are also influenced by the views they perceive others have not only by their actual views. Thus, perception alone

might provide a “sampling frame” and result in more accurate assessment of public opinion distribution.

It follows that individuals with large and heterogeneous networks should be aware of the factual opinion distribution. Indeed, studies on assessments of public opinion towards racial segregation evidenced that a smaller and homogeneous group (church) was more “pluralistically ignorant” than a larger environment (city) (Breed & Ktsanes, 1961). Also, the extent of misperception of the support for segregation was influenced by racial composition of one’s networks and respondents whose networks were predominantly white exaggerated the segregationist sentiment more than respondents with racially heterogeneous networks (O’Gorman, 1975).

This review results in the following hypotheses:

H3: The impact of participation in ideologically homogeneous online groups on misperception of public opinion will be moderated by the size of offline network.

H4: The effects of online groups on misperception of public opinion distribution will be moderated by heterogeneity of individuals within one’s offline network.

Mass Media

Mass media that expose people to views beyond their personal associations are the other source of information about public opinions (Mutz, 1998), and thus the accuracy of assessment of opinion distribution is likely to be contingent on exposure to news media. Since exposure depends on the volume of information in an environment with high flow of information during “high-stimulus” events (Converse, 1962, p. 584) and with frequent reporting of public opinion during contentious issues, even inattentive viewers are likely to be inadvertently exposed to aggregate opinions. In times of low information flow and

low visibility of opinion polls, exposure to news media also likely results in a better recognition of opinions. This is because the norm of presenting two sides of an issue endorses diversity of views in the media and also news media, i.e. talk shows, news magazines, television news and newspapers, guarantee exposure to a broad range of political ideas, cross-cutting ones included (Mutz & Martin, 2001). This increases awareness of diversity of perspectives, as people “become aware that alternative viewpoints are possible and legitimate” (Mutz, 1998, p. 290).

H5: Misperception of public opinion resulting from participation in ideologically homogeneous online groups will be moderated by exposure to ideologically dissimilar news media.

Method

Data for this study come from an online survey conducted in July 2005 of participants of neo-Nazi and radical environmentalism online discussion forums (N=315). These two ideologies were chosen because they are socially marginalized and since, as McKenna & Bargh (1998) found, interaction in marginalized discussion groups increases acceptance of participants’ opinions and the likelihood that they will publicly express them, it is crucial to determine whether extreme individuals accurately assess public opinion). Also, since both groups are within the public “sphere of deviance” (Hallin, 1989) and the mainstream media do not generally report the distribution of opinions on issues related to these ideologies, the effects of extensive media coverage will not intervene. Moreover, a preliminary content analysis of the discussion forums analyzed

evidenced their homogeneity with over 90% of postings being consonant with forums' ideology.

The neo-Nazi and environmental websites, of which forums are usually part, were identified by online search and subsequent web-graph analysis using the Issue Crawler Software (www.issuecrawler.net). This yielded central websites within each ideology, pointed to others that were not found in the basic selection process, and assured that the sampling frame on the level of discussion forums is exhaustive with eight neo-Nazi and nine environmentalist forums. Email addresses of each forum participants were compiled from randomly chosen subtopics. The nationality of each participant selected was checked in the forums' member directories to exclude non-North Americans to whom the news sources provided in the questionnaire would not be familiar.² An email with a link to the online survey was sent to each email address and concurrently, requests were sent to other randomly selected participants by private messages ("PM," an intrinsic part of every discussion forum). A week later follow-up emails and private messages were re-sent to all selected individuals. Overall, 315 respondents participated (neo-Nazi N=178, environmentalists N=137), and 202 completed the entire survey (neo-Nazi N=112, environmentalists N=90) with a response rate of 41%.

Criterion Measure

Misperception was measured using standard wording from studies on pluralistic ignorance, asking respondents to estimate the proportion of the population that favors or opposes a given perspective on an ideology-specific issue. Participants of neo-Nazi

² Although majority of the members in the member directory remain anonymous, they tend to specify their geographical location or imply it by selecting a national flag that is a part of their profile.

forums were asked: “In your opinion what percent of the American population thinks that we have gone too far in pushing equal rights in this country,” and “that we haven’t gone too far in pushing equal rights in this country.” This question was adapted from Pew Research Center (July, 2003), and in order to serve as a comparison indicator, the response distribution found by Pew was recoded with “completely agree” and “mostly agree” responses combined into “agree,” and “mostly disagree” and “completely disagree” into “disagree,” with 3% of “don’t know/refused” responses randomly divided between the two categories. The final public opinion distribution to which neo-Nazi assessments were compared was 44% (we have gone too far in pushing equal rights) and 56% (we have not).

Respondents recruited from environmentalist forums estimated the percent of the American population that “thinks that globalization is a good thing” and that “thinks that globalization is a bad thing.” This question was adapted from Pew Global Attitudes Project Poll (August, 2002), and again the opinion distribution found by Pew was recoded with “very good” and “somewhat good” combined into “good” and the “somewhat bad” and “very bad” into “bad” (again, the 13% percent of “don’t know/refused” was randomly divided). This created an indicator to which environmentalists’ estimates were compared: 69% (globalization is good) and 31% (globalization is bad). The final measure of misperception was created by subtracting public opinion distributions as determined by Pew from the respondents’ estimates of these distributions.

Independent Measure

Using level of engagement in online discussion group as an independent measure requires addressing a number of issues, such as the frequency and the amount of time spent discussing issues online (Muhlberger, 2004). These were assessed by two questions: “During the past week, how many times did you enter this forum and other forums that address related issues from a similar point of view?” 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?” To create a complete measure, the survey also asked about the starting point of one’s engagement in the online group, “When did you first start participating in this forum and in other forums that discuss political issues from a similar point of view?” Responses were combined into a valid scale with one underlying factor with a reliability of $\alpha=.76$ for Nazis and $\alpha=.80$ for environmentalists ($M=3.5$, $SD=1.3$, on 1-5 scale with 5 indicating the highest level of participation).

Contingent Measures

The measure of size of respondents’ offline social network was adapted from the Pew Social Ties Survey (Boase, Wellman, Horrigan & Rainie, 2004). The question primed respondents to think about the people to whom they feel somewhat close and asked how many are family members, other relatives, neighbors, “people you know from work,” and “other people who are not coworkers or neighbors.” The mean size of an offline network was 13 with the standard deviation of 8 people for neo-Nazis and 7 for environmentalists.

Political dissimilarity of individuals who constitute offline social network was created of three measures: 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?”), exposure to dissimilar opinions (“... how often do they express views on political issues that are DIFFERENT from yours?”), and, after a screening question about political discussions, frequency of disagreement (“... how often do you DISAGREE with them when you talk about politics? Just give your best estimate.”). A scale created ranged from 1 to 5 with 5 indicating the highest heterogeneity ($\alpha = .75$, $M = 2.9$, $SD = .97$ for neo-Nazis, $\alpha = .78$, $M = 3.04$, $SD = .84$ for environmentalists; with one underlying factor).

Exposure to news sources was assessed by asking respondents to check the number of days in the past week they were exposed to each of the news sources indicated on an extensive list of newspapers, television news stations and programs, radio news programs and current events magazines. Since the hypothesis predicted that exposure to dissimilar media would impact the degree of misperception, it was of particular interest to incorporate both ideology of and quantity of exposure to one’s media environment. In order to capture this and to avoid subjective judgment, 14 graduate students from Annenberg School for Communication at the University of Pennsylvania coded each source as conservative (-1), neutral (0) or liberal (1) (with the inter-coder reliability of $\alpha = .96$). The mean score was calculated for each source and the days of exposure reported by each respondent were weighted by the score. This allowed creating an aggregate measure that provided the frequency of exposure *and* the ideological valence of each source for each individual. It ranged from -30 to + 13, with the mean of -3.3 for Nazis and -.90 for environmentalists, with negative values indicating conservative and positive values signifying liberal media exposure.

Potential Mediating Measure

Based on the polarization theory, forum participation's impact on misperception could be potentially mediated by opinion strength. Thus, respondents were asked to express the extent to which they agreed with ten extreme ideology-specific statements. Examples from neo-Nazis include "Violence against non-white people is a natural ritual passage into true manhood" or "Non-white people should have equal rights and opportunities in this country." Examples for environmentalists are "Sometimes it is worth sacrificing human lives so that nature survives," "Arson, vandalism, theft and other destructive attacks against businesses are acceptable when done to promote environmental or animal-rights causes." For each, respondents indicated the extent to which they agreed on a seven-point scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). An index of overall extremism of opinions was created from these variables ($\alpha = .76$ neo-Nazis, $\alpha = .87$ environmentalists, with one underlying factor as determined by factor analysis) that ranged from 1 to 7 with 7 being the most extreme ($M = 5.2$, $SD = 1.1$ for neo-Nazis, $M = 4.8$, $SD = 1.5$ for environmentalists).

A number of demographic variables expected to possibly influence the effects was also controlled for. These include age ($M = 35.3$, $SD = 12.93$), gender (67% male), education ($M = 15.8$ years of schooling), and income ($Mdn = \$30,000$ - $\$50,000$). Since 94% of the sample was white, race was not included in the analyses.

Results

This study examined the impact of participation in homogeneous neo-Nazi and environmentalism groups and of ideological dissimilarity of offline environment on pluralistic ignorance. Since the questions that assessed the estimates of misperception (IV) were issue specific, the public opinion distribution comparison indicators obtained from Pew were different and what constituted “misperception” varied for both groups. Therefore the hypotheses were tested separately for the two groups. To establish whether respondents in fact fall prey to pluralistic ignorance and to test the first hypothesis, means of misperception of public opinion distribution were calculated and evidenced that both groups overestimated public support for their positions (false consensus effect). Neo-Nazis overestimated the proportion of the population that thinks we have gone too far in pushing equal rights by 6% (on average saying that 51% thinks so versus 44% found by Pew; $p = .07$; had there been 30 more respondents the difference would be significant at $p < .05$). Environmentalists were more susceptible to the false consensus effect, on average thinking that 44% of the population saw globalization as a bad thing, as opposed to the 31% found by Pew ($p < .01$)

The second hypothesis that predicted increase in misperception with high level of online group involvement was tested by a multivariate model.

[Insert Table 1 about here]

As the first part of table 1 demonstrates, the model determined that participation in neo-Nazi online forums was the most significant predictor of false consensus with age also being crucial, which suggests that online activities increase the perception of public support for neo-Nazi positions and that misperception steadily increases with age. Education, gender and household income had no significant effects. Participation in

environmentalist forums was not related to misperception of public attitudes on globalization.

Since research on false consensus explains this phenomenon by opinion strength, participation in an online forum could indirectly, through ideological extremism, impact misperception of public opinion. Online participation and extremism were significantly correlated for neo-Nazis ($r = .239, p < .05$) but not for environmentalists. Misperception and extremism, on the other hand, were correlated for both neo-Nazis ($r = .273, p < .001$) and environmentalists ($r = -.223, p < .05$). This suggests that for environmentalists it is the extremism, not the online forum that accounts for false consensus. Interestingly, however the opinion strength was negatively associated with misperception, indicating that as environmentalists become more extreme their assessment of public opinion distribution on globalization becomes more accurate. As the second part of table 2 shows, for neo-Nazis, introducing extremism into multivariate model demonstrated that although opinion strength alone increased overestimation of public support for their positions it did not remove the main effect of participation in online discussion forums. Overall, these findings support the second hypothesis for neo-Nazis only by demonstrating that independent effects of online participation on overestimating public support persist when controlling for opinion strength. For environmentalists, however, it is the ideological extremism that explains their misperception.

Can false consensus effect be mitigated? Research suggests that extensive contacts with diverse individuals should contribute to an awareness of public opinion. Since for the neo-Nazis online involvement was the main predictor of misperception, hypotheses 3 and 4 were tested for this group only. They posited that the size of offline

social network *and* its heterogeneity would moderate the impact of online discussion forums on misperception. That is, regardless of the level of engagement in online discussion groups, neo-Nazis who have extensive *and* diverse offline contacts will estimate the distribution of public opinion more accurately. To test these direct and interactive effects two regression models were constructed. The first included participation in online forum, size of offline network, and the interaction term (online participation \times offline network size) and socio-demographic controls. The second model tested participation in online forum and demographics and, instead of the size measure, included heterogeneity of offline networks and the corresponding interaction term (online participation \times offline networks' heterogeneity). These models were run separately as a single model with the two interaction terms would over-control for involvement in online forum. In order to avoid multicollinearity problems between the interaction terms and their components the main effect variables were standardized before the interaction term was formed (Cohen, Cohen, West, & Aiken, 2003).

[Insert Table 2 about here]

Table 2 details the results of the two regression models. In both, participation in an online group positively affected misperception of public opinion with age also being a strong predictor. The effect of other demographics was not significant. Counter to extant research, there was no main effect of the size of offline network (in the first model) and of offline network's heterogeneity (in the second model), suggesting that for this group offline contacts do not result in more accurate estimation of public opinion. Also, there was no significant relationship between misperception and the two interaction terms; that is overestimation of public support for neo-Nazi positions that resulted from online

interactions was not mitigated by the size or by political dissimilarity of their offline networks. Overall, these findings do not support the two interaction hypotheses.

Since the data showed that for environmentalists it was the ideological extremism, not the online activities that inversely affected their overestimation of public support, the two contingency analyses for this group *post hoc* treated the extremism, not the level of online participation, as the predictor in two regression models that assessed contingency effects of large *and* diverse offline network on false consensus. In other words, hypotheses 3 and 4 were translated into “regardless of opinion strength environmentalists who have extensive *and* diverse offline social networks will estimate the distribution of public opinion more accurately.” As above, two regression models were constructed; one that included the degree of extremism, the size of offline network, the interaction term (extremism \times offline network size), and demographics. The second included the measure of offline networks’ heterogeneity and the corresponding interaction term (extremism \times offline networks’ heterogeneity) testing potential moderating effect of ideological dissimilarity of environmentalists’ offline networks on the misperception as associated with increased extremism.

[Insert Table 3 about here]

The results of the two models are presented in Table 3. Both models adequately explained the degree of misperception and found main and opposite effects of age and extremism controlling for the size and ideological dissimilarity of environmentalists’ offline networks and for standard demographics. Opinion strength remained negatively related with false consensus when accounting for challenging offline contacts. In other words, extreme environmentalists had more accurate assessment of public opinion

regardless of the ideological dissimilarity of their offline networks, whereas those, whose views were less extreme consistently overestimated the proportion of the population that considered globalization as bad and the overestimation increased with age. Overall, the people were found not to matter for public opinion perception.

May be the media did? To test hypothesis 5 and assess a moderating effect of exposure to ideologically dissimilar news media on misperception as resulting from participation in neo-Nazi online groups, the multivariate model, apart from demographics and involvement in online forum, included a measure of mass media exposure and centered interaction term (online participation \times news media exposure). The media measure, as was explicated above, was constructed so that it assesses both the frequency of exposure to news sources and the ideological valence of each source, with negative values indicating conservative media and positive values representing liberal media.

[Insert Table 4 about here]

Table 4 presents the details of the model. It demonstrates that exposure to dissonant news media was negatively related to misperception. That is, the more “liberal” the news sources of participants of neo-Nazi online groups, the more accurate their perception of public opinion on equal rights. In addition to these main effects, there was a significant relationship between the interaction term and misperception. That is, the relationship between online group involvement and misperception was stronger for participants whose news sources were conservative, whereas those neo-Nazis who obtained information from “liberal” media estimated public opinion distribution on equal rights more accurately. These findings support hypothesis 5. For illustrative purposes (Figure 1), the main effect of news media on neo-Nazis’ perception of public opinion was

graphed. The line indicates that as exposure to “liberal” media increases (i.e. goes up on positive values on X-axis) the extent of overestimation of public support decreases (with zero on Y-axis signifying accurate estimation, i.e. that 45% of the American population thinks that we have gone too far in pushing equal rights, and with positive values indicating false consensus effect, i.e. conviction that more than 45% shares this view).

[Insert Figure 1 about here]

Again, with regard to testing hypothesis 5 for environmentalists a *post hoc* decision was made to analyze whether exposure to ideologically dissimilar media will influence misperception as related to opinion strength. Thus, multivariate model included opinion strength, news media exposure, demographics, and the centered interaction term (extremism \times news media exposure). The model adequately predicted the misperception of public opinion distribution ($R^2 = .19$), with the persisting and opposite main effects of extremism ($\beta = -.25$, $p < .05$) and age ($\beta = .31$, $p < .01$). Exposure to news media did not influence misperception and also coefficients of the interaction between extremism and news media were not significant. That is, for the surveyed environmentalists exposure to news media was not associated with overestimation of public favorability of globalization, with the degree of misperception being lower for those more extreme and higher for the older ones.

Conclusion

This study applied the extant research and theory on subsets of pluralistic ignorance, namely false consensus and looking glass perception, to examine the effects of

participation in ideologically homogeneous online discussion forums. Such connection had not been conceptually and analytically made before. Moreover, the study contributed to our understanding of pluralistic ignorance and computer mediated communication by evidencing that research on the former should attempt to account for the heterogeneity of information and communication environment of individuals whose estimation of public opinion is being assessed, and that studies on the effects of participation in online communities should also scrutinize the interplay of the online and offline environment.

The hypotheses predicted that individuals would overestimate the proportion of the population that supports their opinion, and that the false consensus effect would be attributable to participation in ideologically unanimous online discussion groups. Further, to ground the analysis in research on the importance of social networks and news media to opinion perception, the hypotheses suggested that the impact of involvement in online groups would be moderated by participants' offline environment, specifically by the size of their social network, the heterogeneity of individuals who constitute it, and by the ideological dissimilarity of their news sources.

Overall, the data supported the majority of the hypotheses for respondents recruited from neo-Nazi online groups, with the findings on environmentalists providing an interesting arena for further exploration. First and foremost, the individuals surveyed overestimated public support for their positions, with neo-Nazis thinking that more people see the progress in the realm of equal rights as negative than it is in reality, and with environmentalists overestimating the proportion of the population that sees globalization as bad. For neo-Nazis this misperception was related to the level of their engagement in online discussion groups. This corroborates the notion proposed above

that processes occurring within ideologically homogeneous online communities, such as the inaccuracy of the process of “personal sampling” of others’ views (Breed & Ktsanes, 1961, p. 382), might result in participants’ inaccurate estimates of public opinion.

Importantly and adding to the literature on pluralistic ignorance, this association was independent of opinion strength, which till now has been considered the main explanatory factor of this cognitive distortion.

Among the environmentalists it was not the online participation that accounted for misperception, but opinion strength, and extremism did not increase the false consensus effect, as the extant literature would suggest, but decreased it. In other words, very extreme environmentalists estimated public support for globalization more accurately than less extreme environmentalists. This finding, which stands in opposition to the literature on pluralistic ignorance, has been tentatively explored by looking at measures of political participation that are not reported in this article. Specifically exposure to environmentalists online forums is positively associated ($r=.33$, $p<0.001$) with political participation (an index reliable at $\alpha=.88$). Since for this group online participation did not predict extremism, these results might indicate that those involved in online forums might be more politically active and thereby gain more accurate sense of what the public around is thinking. Certainly this exploratory explanation should be further scrutinized.

Two other findings are especially noteworthy. First, contrary to the extant theory and research on the contribution of social networks to opinion formation and perception, and despite the hopeful expectations as to the contributory effects of the offline social environment, the findings indicate that the interpersonal contacts and communication with extensive and diverse people in one’s immediate environment did not contribute to

more accurate perception of public opinion. For the groups under scrutiny, people did not matter. Second, the news media did matter. Exposure to ideologically dissimilar news media contributed to accurate perception of public opinion for neo-Nazis and moreover it mitigated the exacerbating effects of the online group. That is, those whose news sources provide dissonant opinions “know better.” Again, the environmentalists were not affected and at this point no plausible explanations for why that was can be proposed. The contributory effects of dissimilar news media are to be expected. It is their precedence over personal communication that merit further theoretical and practical exploration. Moreover, in the increasingly fragmented and “demassified” media environment, even this “impersonal communication” might cease to be contributory, as people might be more and more self-selecting themselves to sources that aim their messages at even more segmented and narrow audiences.

A number of issues need to be addressed, however, that result from the fact that the study utilized cross-sectional data from a survey collected from over 300 extreme participants of online discussion forums. First, the data was dependent on self-report that, given the profile of the respondents, could have been misleading. This, however, would have introduced randomness into the data and precluded finding the results reported above. Also, the fact that the respondents were informed that the questionnaire pertained to “how members of online groups communicate” and contained 40 question decreased the likelihood that participants would have known where and in what direction to mislead. Second, the causal direction for group participation and misperception is somehow ambiguous. It is possible that those who have a particularly distorted view of population opinions are more likely to stay with an extreme online group. The strong

theoretical grounding of the study, however, suggests that although causality cannot be unequivocally determined it is justified to perceive the flow of influence in the direction presented in the analysis. Third, the samples are quite small within each subgroup, which means that substantively meaningful effects might not be detected. This however makes the found main and interaction effects yet more meaningful and important. Also, extreme respondents could have been reluctant to providing accurate responses. But, since the online server on which the questionnaire was based (www.surveymonkey.com) required answering one question before proceeding to the next one, respondents who would have been inclined not to answer would have likely discontinued taking the survey at an earlier stage. It follows that the answers obtained can be regarded as quite reliable. Finally, forums represent only one form of computer-mediated-communication that might not capture the diversity and effects of others, such as chat rooms. In fact, in order to account for this diversity, participants of neo-Nazi and environmentalists Yahoo! and IRC (Internet Relay Chat) chats were also recruited. However, due to the fact that those online spaces are less populated, the number of respondents was insufficient to be analyzed. Preliminary exploration of the data provided from them, however, did not show that members of chat groups substantially differ from participants of discussion forums.³

Overall, this study suggests that exposure to and interaction with ideologically unanimous online communities, as neo-Nazi ones, might influence participants' perception of public opinion distribution on a political issue they discuss online. This instigates considerations as to the potential societal repercussions of such groups.

³ This is especially because there is a high degree of overlap, with neo-Nazis and environmentalists utilizing both forms of online communication. In the recruitment process, many individuals voiced that they had already been contacted through discussion forums or through online chats, and also discussion forums contained postings inviting the members to enter a specific IRC channels.

McKenna and Bargh (1998) found that mere participation in homogeneous online groups increases the likelihood of public expression of members' views. The resulting overestimation of public support for their opinions might further increase this likelihood, as members do not fear social isolation. The act of self-expression makes them more publicly visible, might attract additional adherents (Noelle-Neumann, 1974; Moscovici, 1985), and aid their extreme cause. When their views support racial violence, the consequences of this misperception might be socially detrimental. This is not to suggest, however, that uprisings and systemic changes will be caused by groups that now reinforce their perspectives on the internet, but rather to caution that they do exist, attract thousands members, and that to some participants heterogeneous composition of social networks and exposure to dissimilar news media might matter less than their online encounters. Future research on opinion formation and public opinion perception should adapt to the new media environment to scrutinize the relative importance of personal, impersonal, and computer-mediated-influence to determine whether the people really do not matter.

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Table 1.

Predicting Degree of Misperception (N=106; neo-Nazis only)

	<i>B</i>	<i>Beta</i>	<i>b</i>	<i>Beta</i>
Exposure to Online Forum	5.50***	0.26	4.12*	0.20
Extremism	---	---	4.55*	0.20
<i>Socio-demographics</i>				
Age	0.52***	0.27	0.49**	0.25
Education	1.89	0.11	1.99	0.12
Gender	-4.14	-0.06	-4.07	0.05
Income	-0.85	-0.11	-0.07	-0.09
<i>R</i> ² (%)	19%		22%	

Note: *** $p < 0.001$ ** $p \leq .01$ * $p \leq .05$

Table 2.

Predicting Degree of Misperception (N=106; neo-Nazis only)

	<i>B</i>	<i>Beta</i>	<i>b</i>	<i>Beta</i>
Exposure to Online Forum	5.94**	0.28	5.81**	0.28
Offline Network Size	0.12	0.04		
Offline Network Heterogeneity	---	---	-0.52	-0.20
<i>Interactions</i>				
Offline Network Size × Online Forum	-0.16	-0.06		
Offline Network Heterogeneity × Forum			-0.02	-0.00
<i>Socio-demographics</i>				
Age	0.52***	0.27	0.49**	0.25
Education	1.89	0.11	1.99	0.12

Gender	-4.14	-0.06	-4.07	0.05
Income	-0.85	-0.11	-0.07	-0.09
R^2 (%)	21%		15%	

Note: *** $p < 0.001$ ** $p \leq .01$ * $p \leq .05$

Table 3.

Predicting Degree of Misperception (N=84; environmentalists only)

	<i>B</i>	<i>Beta</i>	<i>b</i>	<i>Beta</i>
Extremism	-4.23*	-0.26	-3.92*	-0.24
Offline Network Size	0.02	0.01		
Offline Network Heterogeneity	---	---	-0.75	-0.03
<i>Interactions</i>				
Offline Network Size × Extremism	0.24	0.10	---	---
Network Heterogeneity × Extremism	---	---	-0.77	-0.04
<i>Socio-demographics</i>				
Age	0.62**	0.32	0.60**	0.31
Education	-0.84	-0.11	-0.71	-0.09
Gender	-5.57	-0.13	-4.18	-0.09
Income	-1.90	-0.131	-1.94	-0.134
R^2 (%)	19 %		19 %	

Note: *** $p < 0.001$ ** $p \leq .01$ * $p \leq .05$

Table 4.
Predicting Degree of Misperception (N=99; neo-Nazis)

	<i>B</i>	<i>Beta</i>
Exposure to Online Forum	5.99**	0.30
Exposure to Mass Media	-0.13***	-.33
<i>Interactions</i>		
Exposure to Mass Media × Exposure to Online Forum	0.74*	0.19
<i>Socio-demographics</i>		
Age	0.23	0.12
Education	0.55	0.07
Gender	-3.13	-0.04
Income	-1.68	-0.11
<i>R</i> ² (%)	29%	

Note: *** $p < 0.001$ ** $p \leq .01$ * $p \leq .05$

Figure 1

