Digital Divisions and Affective Polarization: An Exploration of the Impact of Internalized Stereotypes About Political Outgroups on Affective Polarization in Online Settings

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Abstract

Affective polarization is the growing emotional divide between opposing political groups, leading to decreased and more hostile intergroup interactions in offline and online settings. While social media has become a primary source of news consumption and political discourse over the past decades, its influence on affective polarization remains a subject of debate. This emphasizes the need to investigate the cognitive bias in underlying information processes. In the past, negative outgroup stereotyping has been identified as especially relevant in political intergroup dynamics, as well as in online discussions, leading to increasing levels of intergroup hostility, isolation, and affective polarization. Building on these findings and through the integration of SIT and the SIDE model, we hypothesized that stereotypes are positively related to affective polarization in an online setting. We conducted an experiment ($N = 360$), that presented left-leaning participants with one of three generated social media profiles: either 1) a profile with no information 2) a non-stereotypical profile, or 3) a stereotypical conservative outgroup profile. In line with previous research, we conceptualized affective polarization in terms of other-focused trust, a feelings thermometer, a personality rating, and a social distance scale. While the main analysis does not suggest significant findings for our hypothesized relationship, further analyses revealed significant effects that provide some evidence that links strong group identity and stereotypical profiles to higher affective polarization scores. Future research should build on these findings, and reinvestigate our hypothesized relationship in a more diverse sample, specifically address individual stereotypes and include behavioral measurements.

Keywords: affective polarization, social media, stereotypes, social identity theory, social identity model of deindividuation effects

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The former presidential candidate Hillary Clinton once emphasized that people needed to be open to other perspectives, have tough conversations, and understand each other if they were to make progress as a nation (Clinton, 2016). But while constructive intergroup dialogue is widely recognized as essential for fostering understanding and societal progress, the digital age poses several challenges. The growth of social media has revolutionized information accessibility and global connectivity, yet it paradoxically seems to intensify societal divisions rather than foster unity. A longitudinal survey of the American National Election Study (ANES) revealed that as of 2020, Americans' warmth towards outparties had dropped from 48 degrees in the 1970s to 20 degrees today (Finkel et al., 2020). This decline illustrates the rise of affective polarization, which manifests as an extreme divide into opposing ideological camps, where individuals rarely engage in constructive tough conversations across intergroup boundaries (Bliuc et al., 2021). Consequently, extensive literature has highlighted the urgency of understanding the contributing factors of affective polarization and finding ways to address and resolve the dysfunctional political landscape (Bliuc et al., 2021; Finkel et al., 2020; Iyengar et al., 2019; Koetke et al., 2023).

One significant source of this increasing hostility is social identity and group biases (Koetke et al., 2023). Social identity theory (SIT), emphasizes the strong distinction between ingroups and outgroups, providing a framework for understanding the rise of affective polarization between opposing political fractions (Tajfel, 1973). One important group bias that contributes to the intensification of affective polarization are stereotypes, which shape and

reinforce negative attitudes and emotions, contributing to the cycle of polarization (Koetke et al., 2023).

While most of the literature agrees that outgroup stereotypes are linked to heightened affective polarization, scholars have not reached an agreement on whether and in what way stereotypes operate differently on social media. Therefore, this paper seeks to extend the existing literature and explores the question: "How do stereotypes about political outgroups in online environments contribute to affective polarization?"

Affective Polarization

Affective polarization refers to a socio-psychological phenomenon where individuals positively evaluate members of their in-group and negatively evaluate members of their out-group (Druckman & Levendusky, 2019). This includes intense feelings of animosity, distrust, and anger, towards the outgroup (Bliuc et al., 2021). As a consequence, individuals show a lack of trust and confidence in members of their opposing political group and are unwilling to socialize across party lines (Iyengar et al., 2019). This hinders constructive and rational communication and cooperation between groups and fuels conflict (Bliuc et al., 2021). Affective polarization is especially prominent in the United States (US) where conflicts between the liberal Democratic Party and the conservative Republican Party are often accompanied by heated emotions, and a lack of social trust and cohesion (Iyengar et al., 2019). In fact, researchers have found that many people are more motivated to engage in politics out of their dislike for the opposing party than they are by their identification with their own party (Finkel et al., 2020). The current socio-political landscape in the US demonstrates how affective polarization can undermine critical democratic processes and further illustrates the urgency to understand the

underlying mechanisms behind affective polarization and its threat to intergroup cooperation, political exchange, and national unity (Koetke et al., 2023).

Social Identity Theory and Affective Polarization

The underlying socio-psychological phenomenon of affective polarization can be explained with the concept of group identification, established in the social identity theory (SIT) (Billig & Tajfel, 1973) and self-categorization theory (SCT) (Turner et al., 1989). These state that individuals define themselves and others based on their group membership, distinguishing between their ingroup and their outgroups. This particular distinction results in the isolation of groups, which exhibit resistance to information and perspectives that diverge from their own and could thereby challenge the group's collective identity and narrative (Bliuc et al., 2021).

Furthermore, individuals hold different perceptions of the particular group formations. The concept of outgroup homogeneity describes how outgroups are perceived as an entity, disregarding individual differences (Farwell & Weiner, 2000). Such perceptions are of significance, as hostility towards one group member quickly escalates to hostility towards the entire group, thereby ultimately perpetuating societal division (Koetke et al., 2023). In sum, SIT and SCT provide a theoretical framework explaining how emotions and behaviors rooted in group identities can intensify boundaries between opposing ideological groups, create an “us vs them” divide, and heighten affective polarization (Bliuc et al., 2021; West & Iyengar, 2022).

Stereotypes in Political Intergroup Interactions

One of the most influential intergroup biases stemming from social categorization are stereotypical judgments about the outgroup (Koetke et al., 2023). Stereotypes are defined as a set of fixed, often simplified and generalized beliefs about a particular person or a group of people (Weber & Crocker, 1983). These beliefs tend to be negative, harmful, and often inaccurate,

generalizations that attribute personally disliked qualities to others (Koch et al., 2016). Especially in political contexts, stereotypes about the outparty are often biased, unnaturally exaggerated, and extreme (Koetke et al., 2023).

Researchers have identified two key mechanisms through which stereotypes influence interactions between groups. Stereotype activation refers to the process by which exposure to a stereotypical cue triggers stereotype-related thoughts and behaviors while stereotype application means using these activated stereotypes in judgment and behavior. In this way, exposure to negative stereotypical information about a political outgroup member can activate negative beliefs, which are then applied in judgment and behavior and thereby increase affective polarization (Kunda & Spencer, 2003).

The underlying phenomenon of outgroup homogeneity explains the tendency to perceive the outgroup as one whole, with the same features, beliefs, and goals. Recent research in the US illustrates how partisans often attribute stereotypical traits, demographic characteristics, and ideological perspectives inaccurately. For instance, conservatives may stereotype liberals as highly emotional and predominantly lesbian, gay, bisexual, and transgender (LGBT), whereas liberals may think of all conservatives as heartless and overly invested in defense spending (Ahler & Sood, 2018; Crawford et al., 2013; Westfall et al., 2015).

Such stereotypes can significantly influence affective polarization and intergroup interactions by undermining the initiation, quality, and maintenance of productive intergroup relations (Koetke et al., 2023). Therefore, addressing stereotypes is crucial for fostering inclusive societies and reducing polarization in political contexts, particularly within the realm of social media, where stereotypes can be frequently activated and applied in user interactions, thus intensifying divisions among groups.

Social Media and Affective Polarization

Social media has become one of the main sources for news consumption and political discussions, which has profound implications for affective polarization (Iyengar & Hahn, 2009; Koetke et al., 2023; Nguyen, 2018; Tucker et al., 2018). Concurring research has examined the link between the rise of polarization and the introduction or rather the intense use of social media (Kubin & Von Sikorski, 2021; Tucker et al., 2018, Cho et al., 2018).

Researchers have highlighted the impact of algorithms that prioritize content that aligns with users' existing beliefs (Iyengar & Hahn, 2009; Koetke et al., 2023; Nguyen, 2018; Tucker et al., 2018). This can create homogeneous networks, such as *echo chambers*, spaces where individuals are primarily exposed to information that reinforces their pre-existing beliefs and perspectives. Firstly, individuals engage in a cycle of reinforcing their preexisting beliefs, thereby strengthening their political views. Secondly, people refrain from interacting with outgroup members, thus they are rarely confronted with information that contradicts and challenges their initial beliefs (Iyengar & Hahn, 2009; Koetke et al., 2023; Tucker et al., 2018). Multiple researchers have found that this isolation intensifies affective polarization as it reduces opportunities for constructive intergroup dialogue, undermining the chances of improving intergroup relations (Iyengar et al., 2018: Paluck et al., 2019).

The social identity model of deindividuation effects (SIDE) provides a relevant theoretical framework that suggests that deindividuation and anonymity can amplify conformity to group norms due to reduced individual accountability and increased group salience, group identities increase as people shift from their personal to their social identity (Reicher et al., 1995). Many social media outlets allow users to remain completely anonymous or only include limited individuating information (Tucker et al., 2018). Under these circumstances, behavior is

heavily influenced by group norms, shaping interactions and attitudes in ways that can exacerbate ingroup favoritism and outgroup hostility (Reicher et al., 1995).

While online platforms supersede offline political discourse by providing opportunities for exposure to a diversity of perspectives this might just result in the opposite: an increasing emotional divide between groups. This emphasizes the need for the present research that aims to obtain evidence about underlying bias in online interactions and affective polarization.

Stereotypes in Intergroup Interactions on Social Media

Stereotypes, known to undermine constructive intergroup interactions, are particularly influential on social media platforms where anonymity and limited factual individuating information can amplify their effects (Tucker et al., 2018)

Especially platforms that are often used for political discussions, such as Reddit or X include a high number of completely anonymous profiles and profiles with little personal information (Tucker et al., 2018). If profiles do not reveal any verifiable and factual information about a user, people interpret information in an internalized schema and use biases to infer others' group memberships (Tucker et al., 2018). Stereotypical information serves as cues about others' group membership and makes ingroup identity even more salient (Wilder & Shapiro, 1984). While, stereotypes are acknowledged to have implications for affective polarization, past research conducted research in online settings that are nowadays very differently or less commonly used in political discussions (Tucker et al., 2018). Studies like those examining YouTube (Bliuc et al., 2020) do not fully capture the current landscape due to their emphasis on video-based content and limited interactivity (Bliuc et al., 2020). Thus, this study aims to extend the SIDE model and previous research, investigating the hypothesis that stereotypical information serves as cues that make ingroup identity salient and interact with the

deindividuation effect of social media platforms in a way that it leads to increased affective polarization.

Overview of the Present Study

The intergroup bias that results from social categorization suggests that political bias is activated by people's tendency to see outgroup members solely as representatives of a homogenous group (Fiske et al., 2020). In addition, information about out-group members that aligns with internalized stereotypes reinforces negative perceptions and intensifies emotional responses (Ahler et al., 2018). In line with the SIDE model, group identities become more salient in social media contexts that allow deindividuation and anonymity (Reicher et al., 1995). However, despite an increasing body of research on affective polarization and the interplay with the rise of social media, there is a significant gap in detailed analyses specifically assessing how intergroup biases, such as stereotypes, contribute to affective polarization online.

Our study aims to add to the existing literature on the influence of interpretations of personal information on affective polarization (Koetke et al., 2023) and specifically examine the effect of stereotypes on interpretations of personal information and the subsequent influence on affective polarization in online environments. We used four standard measures based on previous literature that highlighted distinct features of affective polarization: other-focused trust, a feelings thermometer, personality ratings and a social distance scale (Bliuc et al., 2021; Finkel et al., 2020; Iyengar et al., 2019; Levendusky, 2018; Wojcieszak & Garrett, 2018; Wojcieszak & Warner, 2020). I specifically hypothesized:

H1a: Participants who are exposed to a stereotypical social media profile of a political outgroup member will report less trust for the person than participants who are exposed to non-stereotypical profiles.

H1b: Participants who are exposed to a stereotypical social media profile of a political outgroup member will report less warm feelings for the political outgroup than participants who are exposed to non-stereotypical profiles.

H1c: Participants who are exposed to a stereotypical social media profile of a political outgroup member will report less positive personality ratings of the political outgroup than participants who are exposed to non-stereotypical profiles.

H1d: Participants who are exposed to a stereotypical social media profile of a political outgroup member will report feeling less comfortable with social contact with the political outgroup than participants who are exposed to non-stereotypical profiles.

Our study focused on participants who identified as left-leaning and thus regarded conservatives as their respective political outgroup.

Method

The study was approved by the ethical committee of the Faculty of Behavioral and Social Sciences at the University of Groningen. We advertised the study via online posts and posters.

Participants

Our sample included participants who were at least 18 years old and identified as left-leaning. The total sample size consisted of 456 participants, while data from 134 participants was removed due to being under 18, refusing data processing consent, not identifying as politically left-leaning, and failing the manipulation check. Therefore, the final dataset included an effective sample size of 360 participants (see Figure 1, Appendix A). 244 participants agreed to share their age and gender, we recorded 46.7% 114 male participants (46.7%), 124 females (50.8%), and 6 participants identifying as other/non-binary (2.46%). 23 participants were between 18 and 24 years old (9.43%), 27 between 25 and 34 (11.07%), 50 between 35 and 49

(20.49%), 13 between 50 and 64 (5.33%) and one that was 65 years or older (0.41%) (see Figure 2, Appendix A). Prior power analysis revealed a required sample size of N = 86 participants to detect a moderate effect size of $d = 0.5$ with 90% power.

Measures

Group Identification

To ensure left-leaning group identity, we measured participants' political group membership via the single-item measure on a Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*) (Postmes et al., 2012).

Affective Polarization

Affective polarization measurements were adapted from previous research. Each measure was treated as a separate dependent variable. We utilized questionnaires investigating outgroup trust, a feelings thermometer, a personality rating questionnaire, and a social distance scale.

Other-Focused Trust. To measure trust we used a 5-item questionnaire indicating whether participants viewed the person whose profile they were presented with as trustworthy, kind, honest, and helpful on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) with a high inter-relatedness ($\alpha = .9$). Lower trust is related to higher affective polarization. This scale was adapted from Zhang (2021) and backed up by studies that previously identified the lack of trust in the opposing political group as a prominent feature of affective polarization (Bliuc et al., 2021; Iyengar et al., 2019).

Feelings Thermometer. The “feelings thermometer” assessed the warmth of outgroup feelings, asking participants to rate their feelings towards conservatives on a scale from 0 (*very unfavorable*) to 100 (*favorable*). Lower ratings of warmth indicate higher affective polarization.

This was adapted from previous studies (Bliuc et al., 2021; Iyengar et al., 2019) and a longitudinal survey of the American National Election Study (ANES) (Finkel et al., 2020).

Personality Rating. The measurement included questions about the extent to which participants perceived conservatives as intelligent, honest (positive traits) and as hypocritical, selfish, and mean (negative traits) (Wojcieszak & Warner, 2020). Participants evaluated their perception of conservatives reaching from 1 (*strongly disagree*) to 7 (*strongly agree*). Precisely, high ratings of the negative traits and low ratings of positive personality traits indicate high levels of affective polarization. Analysis of the internal consistency indicated a significantly low Cronbach's Alpha ($\alpha = .48$), which signals a poor inter-relatedness between items (Tavakol & Dennick, 2011). Nonetheless, due to previous significant findings in the literature on affective polarization (Bliuc et al., 2021; Iyengar et al., 2019), we proceeded to test personality ratings but further discussed this limitation in the discussion section.

Social Distance Scale. The measurements asked participants how comfortable they would feel having contact with a conservative through the marriage of a family member, friendship, neighborhood, or work. This tested the participants willingness to socialize across party lines, as the higher social distance is considered a feature of affective polarization (Iyengar et al., 2019). The questions asked participants to specify how comfortable they would feel from a scale of 1 (*very uncomfortable*) to 6 (*very comfortable*), the items were strongly interrelated ($\alpha = .9$).

Stimuli

We presented participants with three different profiles named "Alexxxxx5665", as a gender-neutral and not politically stereotypical name, used in previous research (Koetke et al,

2023). Profile pictures in manipulated conditions were generated using artificial intelligence (Fotor, n.d.).

The first version of the profile only consisted of a username with no additional information and a profile picture. The second profile included individuating information with emojis of books, an island, a dog, and a frisbee, based on common social media bios (Semertzidis et al., 2013) and a profile picture showed an androgynous person with long hair, a backpack, and a hat in a lush valley. This was aimed to not reinforce a suggested gender as we hypothesized that this could introduce unintended assumptions about political views associated with each gender. The third profile featured a Caucasian male in his mid-to-late twenties with a neutral expression, and a bio with a cross, prayer hands, a flexed arm muscle, and the text "Proud Husband", chosen to evoke a stereotype of a conservative Caucasian male (Ahler & Sood, 2018).

Across all conditions, participants encountered two images with four different texts, supposedly written by the person in the profile. Both posts were on the topic of gender discrimination, as it is a common topic that divides the views of conservatives and liberals and left-leaning people (Brown, 2024; Horowitz & Horowitz, 2024). Considering that we investigated an international sample it was important to use a topic that was not specific for one country. We controlled for the potential influence of the presented content by ensuring equal distributions across all conditions.

Procedure

All participants indicated that they were 18 years of age or older. Following, they received informed consent. After being briefed on the study's purpose, content, confidentiality, and contact information, they were presented with one of three profiles, followed by two tweets that the users "shared". Following this, they then had to complete questionnaires that measured

their affective polarization on the four dimensions. The final, optional questions collected participants' demographic details. After completing the study, participants received a debriefing and were informed about the study's purpose. The survey took 10-15 minutes to complete.

Design

This study followed an experimental design. The independent variable profile information was distributed into three conditions: individuating information, stereotyping information and no information. The dependent variable affective polarization, was measured through other-focused trust, a feelings thermometer, personality ratings, and a social distance scale. This study was part of a bachelor thesis project combining multiple individual hypotheses which determined the required statistical analyses. The present study examined the influence of profile information on other-focused trust, the feelings thermometer, personality ratings and the social distance scale by conducting four separate analyses of variance (ANOVAs).

Results

Descriptive Statistics

Prior to our data analysis, we examined the descriptive statistics and correlations of the variables included in the model. Table 1 (Appendix A) presents the descriptive statistics for the dependent variables, focusing on affective polarization across three conditions: no info, individuating info, and stereotypical info. It is important to note that for FT, PR, and SDS the numbers of missing cases for each condition were between nine and fourteen. In the OFC measure, 34 participants did not complete the questionnaire in the no information and stereotypical information conditions, and 36 participants did not complete it in the individuating information condition (Figure 1, Appendix A).

In addition, correlation coefficients among the dependent variables were examined to assess the strength and direction of the relationships between them. OFC is moderately positively correlated with FT (r = .42) and SDS (r = .37) and moderately negatively correlated with PR (r = -.31). FT and PR have a strong negative correlation (r = -.53), and FT and SDS are strongly positively correlated (r = .67). Lastly, PR and SDS have a moderate negative correlation (r = -.48). In the context of our analysis, moderate to high correlations are anticipated since all measures aim to assess the underlying construct of affective polarization. Additionally, the negative correlations of PR are due to inverse measurement: negative ratings are associated with higher affective polarization, whereas higher scores in the other measures indicate higher affective polarization.

Table 4

Correlations between the Dependent Variables OFC, FT, PR, SDS

Variable	1	2	3	4
1. OFC	-—			
2. FT	.42**	—-		
3. PR	-.31*	-.53	—-	
4. SDS	-.37	.67***	-.48	—

Note. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$

Preliminary Analysis

We conducted four ANOVAs to examine the differences between affective polarization scores across the three profile information type conditions.

Prior, we conducted a preliminary analysis to check for the required assumptions: normality, homogeneity of variance, and independence of observations.

Across most conditions, the Shapiro-Wilk *p* values were significant and therefore indicated violations of normality (see Table 1, Appendix B). We conducted Q-Q and histograms, to visually assess if the datasets followed a normal distribution. Again, most of the Q-Q plots were significantly skewed (Figure 1, Figure 3, Figure 5, Figure 7, Appendix B), and the histograms showed irregular distribution (Figure 2, Figure 4, Figure 6, Figure 8, Appendix B), further indicating normality violations. The only exception was the distribution of PR scores of the individuating info condition, with a non-significant Shapiro-Wilk *p-value* ($p = .15$), a Q-Q plot that shows that the data closely follow a straight line (Figure 6, Appendix B), and a histogram displaying a symmetric, bell-shaped curve, indicative of a normal distribution (Figure 6, Appendix B).

The Levene's test to check for the homogeneity of variance across groups of the distribution indicated no significant difference in variances across the groups, and the assumption of homogeneity of variances was met ($p_{OFC} = .726$, $p_{FT} = .939$, $p_{PR} = .635$, $p_{SDS} = .861$).

The assumption of independence of results was met due to our random sampling procedure. It is important to acknowledge that normality tests revealed some deviations from a perfectly normal distribution. However, empirical evidence supports the use of the ANOVA F-test even under violation of normality assumptions when testing hypotheses about means (Feir-Walsh & Toothaker, 1974). Consequently, we proceeded with the analysis while acknowledging this limitation.

Hypothesis Testing

The goal of this research was to investigate the relationship between profile information type and affective polarization. Prior to the analysis, I hypothesized that exposure to a social media profile that revealed personal information in line with an internalized stereotype is negatively related to trust towards the political outgroup (*H1a*), negatively related to warm feelings for the political outgroup (*H1b*), positively related to negative personality ratings of the political outgroup (*H1c*) and negatively related to the comfort of social contact with the political outgroup (*H1d*). We performed an ANOVA of the differences between profile information types across other focused trust, the feelings thermometer, personality rating, and social distance.

The performance of an ANOVA of OFC revealed no significant association between the categories of profile information type and the dependent variable $F(2,251) = 0.62$, $p = .540$, with an effect size of $\eta^2 = 0.005$.

Similarly, the ANOVA of FT presented no significant association between the independent variable and the FT score $F(2,317) = 0.784$, $p = .458$, with an effect size of $\eta^2 = 0.008$. The ANOVA between the PR score and the independent variable did not display a significant relationship $F(2,319) = 1.356$, $p = .259$, $\eta^2 = 0.004$. This is in line with the previous finding of a significantly low Cronbach's Alpha, signaling an issue of internal consistency measuring the same construct of affective polarization ($\alpha = .48$). Lastly, the ANOVA conducted to test the association between SDS and the profile information also did not yield significant results $F(2,319) = 1.703$, $p = .184$, $\eta^2 = 0.011$.

The analyses of our data revealed no significant differences between the groups across the measures of OFC, FT, PR, and SDS and thus no evidence that supports the hypothesized significant effect of profile information types on affective polarization scores.

Additional Exploratory Analysis

As an exploratory analysis, we hypothesized that group identification (GI) could have a possible interaction effect between the independent profile information type and the AP measures. We distinguished between the three levels of GI: low (s*omewhat agree*), moderate (*agree*) and high (*strongly disagree*) and conducted 2-way independent ANOVAs.

The ANOVA for the interaction effect between group identification and profile information type on the feelings thermometer did not yield significant results ($F(4,311) = 0.85$, $p = .492$). However, upon examining the contrasts of the interaction effects, we found a significant difference in FT scores between low levels of GI and high GI in the no info profile type condition ($t(311) = -2.98$, $p = .003$). Furthermore, we also found a significant difference in scores between low GI in the no info condition compared to high GI in the stereotypical info condition ($t(311) = -3.1$, $p = .002$).

Similarly, we did not find significant results for the interaction effect between group identification and profile information type on the personality rating measurement ($F(4,313) = 0.8$, $p = .526$). Still, the examination of contrasts showed significant differences in PR scores between low levels of group identification and high levels of group identification in the no info profile type condition ($t(313) = -4.23$, $p < .001$). We also found significant differences between low GI in the no info condition compared to high GI in the individuating info condition ($t(311) = 3.16$, $p = .002$) and again, between low GI in the no info condition compared to high GI in the stereotypical info condition ($t(311) = 3.56$, $p < .001$).

Lastly, we also did not find significant evidence for an interaction effect between group identification and profile information type on the social distance scale ($F(4,313) = 1.19$, $p = .317$). Yet, two analyses of contrasts were significant, indicating a significant difference in SDS

scores between low GI and high GI in the no info profile type condition ($t(313) = -3.61$, $p < .001$) and between low GI in the no info condition compared to high GI in the stereotypical info condition ($t(313) = -2.51$, $p = .01$).

Our main analyses did not obtain significant results, indicating hypothesized differences in affective polarization scores among the different profile information conditions, therefore our initial hypotheses were not supported by our results. However, our exploratory analysis did obtain significant evidence that supports that self-reported strong left-leaning participants who were exposed to a stereotypical social media profile scored lower on outgroup feelings, higher on negative personality ratings, and were less comfortable with social contact with a political outgroup, than self-reported low left-leaning group identity that was exposed to non-stereotypical profiles. This was not evident in the other-focused trust measure.

Discussion

The aim of this study was to examine whether stereotypes about political outgroups in online environments contribute to affective polarization. We expected that personal information of an online profile representing an outgroup stereotype would lead to less trust in the person (H1a), less warm feelings for the political outgroup (H1b), less positive personality ratings of the political outgroup (H1c), and less comfort with social contact with the political outgroup (H1d), than exposure to non-stereotypical profiles. These propositions were tested in an experiment, investigating the attitudes of a politically left-leaning sample as an ingroup towards conservatives as the outgroup. The independent variable profile information type was manipulated across three conditions, participants were exposed to either a profile with no information, a non-stereotypical profile, or a stereotypical conservative outgroup profile.

To test our hypotheses, we compared the effects of these profiles on the affective polarization measures. Contrary to our expectations, we did not find significant differences in the effect of the different profiles across all four measures. Therefore, our study did not provide evidence for the hypothesis that stereotypical outgroup profiles exacerbate affective polarization more than anonymous and non-stereotypical profiles.

Additional exploratory analyses examined how group identification influenced the affective polarization scores. We divided group identity scores into three conditions: low (*somewhat agree),* moderate (*agree*), and high (*strongly agree*), and compared the differences in their reactions to the profiles. We found significant results indicating that people with strong left-leaning identification showed greater affective polarization when exposed to a stereotypical profile compared to moderately left-leaning individuals exposed to anonymous profiles. This was evident across affective polarization scores on the feelings thermometer, decreased positive personality ratings, and less comfort with social contact with the political outgroup on the social distance scale.

Theoretical Implications

The results of the present study reveal no significant relationship between exposure to a stereotypical social media profile and affective polarization. This suggests that participants may not have critically processed the information in any of the profiles. The heuristic-systematic model of information processing (HSM) offers valuable insights into understanding this lack of critical processing (McWilliams, 2021). The model describes how motivation and affect impact how people process information. It distinguishes between two modes of information processing, in systematic processing subjects critically engage with the quality of information and arguments, whereas in heuristic processing, people heavily rely on cognitive biases. While

primarily used in the context of confrontation and engagement with information that challenges personal political beliefs, this model might provide an explanation for the present findings. Individuals are more likely to engage in systematic processing when they are highly motivated to achieve an accurate understanding of the information (accuracy motivation) (McWilliams, 2021). However, in situations where there is no strong emphasis on accuracy, people resort to heuristic processing as a quicker and more effortless strategy. In our study, participants might have not been particularly motivated to achieve a nuanced understanding of the profiles that were presented. This ties back to the tendency to perceive outgroups as homogenous entities, overlooking any potential individual differences (Farwell & Weiner, 2000). This lack of accuracy motivation could explain why participants primarily relied on pre-existing biases (heuristic processing) rather than critically analyzing the information, disregarding the profile type. Thus, the framework of HSM provides one explanation for the lack of significant differences, suggesting that participants, regardless of the information presented (no info, individuating info, stereotypical info), may have primarily relied on heuristic processing of the content that was shared rather than critically evaluating the details of the profiles.

Another explanation for the findings that the profiles did not influence the affective polarization differently, could be that the degree of group identity and therefore affective polarization is so strongly ingrained in a person's identity that it is not easily manipulated with a brief exposure to a specific social media profile. These results are consistent with a claim by Iyengar and colleagues (2012), who argued that personal connections to political groups are based on an internalized partisan identity that is found early and remains stable throughout their lives.

The habit hypothesis of political behavior offers a potential explanation. The hypothesis suggests that repeated behavior, such as voting for a particular party, can become habitual, leading to party loyalty (Shachar, 2003). The habit hypothesis could be extended to behaviors reinforcing social distance, suggesting that negative experiences with outgroups, or even just one outgroup member, can lead to a habit of avoiding them altogether. This provides one explanation of why the different profiles did not significantly impact social distance scores, as participants might have simply acted out of habit, disregarding the information they were presented with before.

Our exploratory analysis found that people with strong left-leaning identification showed greater affective polarization when exposed to a stereotypical profile compared to moderately left-leaning individuals exposed to anonymous profiles. This is consistent with social identity theory (Tajfel, 1973) and the SIDE model (Reicher et al., 1995). Group identity depends on the strength of a person's connection to their social group and under conditions of deindividuation and anonymity, individuals lose their sense of self-awareness and may become more susceptible to group norms (Reicher et al., 1995). Furthermore, high identification leads to a stronger sense of "us" versus "them" and intensifies in-group favoritism and out-group hostility (Tajfel, 1973). This can explain why the subsample of extremely left-leaning participants that were exposed to outgroup stereotypical profiles (which made the group membership of the user more salient) had higher scores of affective polarization. This extends our hypothesized relationship of exposure to a stereotypical social media profile on affective polarization, by introducing how high group identity strengthens the impact of stereotypical information on the phenomenon.

Limitations and Future Directions

Our study faces several methodological limitations in terms of sampling, manipulations, and measurements that might have contributed to the lack of significant findings for our initial hypotheses.

A key limitation of our study design is the sole use of a left-leaning sample as the ingroup interacting with conservatives as the outgroup. This limits our ability to analyze affective polarization from the different perspectives between left-leaning liberals and conservatives, potentially hindering the detection of significant results. In fact, there is an ongoing debate about how affective polarization might differ among the two groups (Jost et al., 2017). For instance, a study of Iyengar and colleagues (2019) suggested that affective polarization scores tend to be higher among conservative Republicans compared to liberal Democrats. Indeed, liberals and conservatives often hold different core values and morals (Braithwaite, 1998). A study examining moral differences between the two groups revealed that conservatives rated ingroup identification and loyalty as more relevant to their moral judgments than liberals (Graham et al., 2009). Other researchers found that conservatives were more resistant to change (Jost et al., 2003). Future research should employ a balanced sample consisting of both liberals and conservatives. This would allow for a more comprehensive understanding of these potential asymmetries in affective polarization and make significant contributions to the debate about how affective polarization is tied to values that are representative of the different groups.

Secondly, our manipulation of a stereotypical profile might have led to nonsignificant results. We only based our creation of a stereotypical conservative on previous research that highlighted the most common stereotypes about Republicans and Democrats (Ahler & Sood, 2018). However, given that the researchers were based in the Netherlands, came from various

nationalities, and distributed the study primarily via social media, we expect our sample to be international. With different party systems, the political outgroups of left-leaning people differ across cultures. Furthermore, conservatism and the way it manifests in party ideologies and stereotypes differs across countries (Wagner, 2024). This was not taken into account, as we did not include questions asking whether the stereotypes that we used actually applied to the personal beliefs of participants. Therefore, the profile might not have been perceived as stereotypical of a political outgroup, potentially hindering the activation of cognitive biases that we expected to increase affective polarization. Future studies should include pre-measurements that assess individual perceptions of stereotypes to then include manipulations that involve profiles that are in line with these previously confirmed stereotypes.

Moreover, there are several limitations in the conceptualizations and measurements of affective polarization. We measured affective polarization through other-focused trust, a feelings thermometer, personality ratings, and a social distance scale. Especially personality ratings and the social distance scale are prone to several limitations. The personality scale's low Cronbach's Alpha ($\alpha = .48$) suggests it might not effectively measure affective polarization (Tavakol & Dennick, 2011). Secondly, the social distance scale has been criticized for not effectively measuring affective polarization. As social distance measures behavioral intentions, it might be better to measure it with behavioral measurements than with self-reports. Integrating behavioral measurements could also improve the conceptualizations of affective polarization as it would measure the extent to which attitudes and behavior are related, therefore generating results that are especially relevant. This is relevant, because the effects of affective polarization often manifest in destructive intergroup behavior (Iyengar & Westwood 2015). Future research could build on the present study and create simulated social media platforms, where participants have

to interact with stereotypical and non-stereotypical profiles of ingroup and outgroup members. This way, researchers could reinvestigate the hypotheses and further examine the relationship between attitudes and behaviors related to affective polarization in an interactive online setting.

Practical Implications

In addition to the need for future research, it is important to further elaborate on how our findings can have implications for practical implementation.

Based on the increase of affective polarization in recent years (Finkel et al., 2020), one could assume that group identities become stronger and so will the roles of stereotypes. This is troubling, as in fact, a significant portion of conservatives do not conform to the stereotypical image of a Caucasian male, who is in his mid-to-late twenties, religious, stronger than the average population, and a proud husband (Ahler & Sood, 2018). These stereotypes are often promoted by mass media that is consumed across all socio-demographics (Ahler & Sood, 2018; Levendusky & Malhotra, 2015) and can exacerbate affective polarization, leading to decreased initiation and qualitative interactions between different political groups (Koetke et al., 2023).

Therefore, it is important to educate people about different parties and ideologies, limiting the way that emotional components and cognitive biases influence intergroups, but also other political behavior. Governmental institutions should distribute information about parties' ideologies on social media and official websites. They should raise awareness by running campaigns, online and offline, warning of how stereotypes can discriminate and exclude individuals and whole groups. Traditional and social media outlets should be used to reach diverse socio-demographics and report on similarities across party compositions and not accentuate inaccurate differences. Educational institutions and companies could organize workshops and events bringing different political groups together and thereby educating people

on actual distributions of outgroup members, debunking myths and stereotypes. Through these, people could learn to consider how they themselves might be stereotyped, fostering awareness of the harmful effects and thereby empathy and understanding.

All of this could motivate people to critically engage with information, and thereby engage in systematic processing, which, in line with the HLM, leads to more accurate understanding (McWilliams, 2021). Further, education on parties, their ideologies, and compositions could allow overcoming engaging in political behavior out of habits (Shachar, 2003) and promote engaging in political behavior out of political convictions.

Above all, it is important to inspect the online and offline synergy of affective polarization. Combining online interventions with real-world interaction opportunities could target behaviors in different contexts. This way, a multi-dimensional approach creates a stronger foundation for reducing affective polarization and is therefore likely to cause more sustainable changes.

Conclusion

This study aimed to contribute to the literature around affective polarization in online settings to provide novel insights into how cognitive bias in underlying information processes contributes to the recent rise of affective polarization. We conducted a study that explored whether exposure to a stereotypical profile of a political outgroup member would lead to more affective polarization than exposure to non-stereotypical profiles. While we did not find differences in polarization scores between the groups, this study provides relevant evidence that links strong group identity and stereotypical profiles to higher affective polarization scores. Future research should build on these first findings, and integrate the SIT and the SIDE model to examine left-leaning and conservative samples, particularly the significant influence of the

strength of group identity, to contribute to a comprehensive understanding of the potential asymmetries in affective polarization and the debate about how affective polarization is tied to values that are representative of the different ideologies. In addition, studies should investigate the role of stereotypes by employing new measures that assess individual perceptions of stereotypes. This is essential because understanding the negative influence of stereotypes on intergroup behavior and the rise of affective polarization can set the stage for interventions that might be able to bridge the emotional divide, foster tough conversations that cut across intergroup boundaries, promote healthier democratic discourse and pave the way for progress as a united nation.

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Appendix A

Table 1

Sample Size of each AP Measure

Measure	*n*
Other-Focused Trust	254
Feelings Thermometer	320
Personality Rating	322
Social Distance Scale	322
Need for Cognition	312

Table 2

Frequencies of Age and Gender

Demographic	*n*	%
Gender		
Male	114	32
Female	124	34
Other	6	2
Missing	116	32
Age		
18-24	84	23
25-34	96	27
35-49	50	14
50-64	13	4
65 or older	1	1
Missing	116	32

Appendix B

Table 1

Descriptive Statistics for the Dependent Variables OFC, FT, PR, SDS for Each Level of the Independent Variable Profile Information Type (No Info = no info, Individuating Info = info, Stereotypical Info = stereo info) Including Shapiro-Wilk Test of Normality

	Other-focused Trust			Feelings Thermometer			Personality Ratings			Social Distance Scale		
	no info	info	stereo info	no info	info	stereo info	no info	info	stereo info	no info	info	stereo info
Valid	85	83	86	104	105	111	105	106	111	105	106	111
Missing	34	36	34	15	14	9	14	13	9	14	13	9
Mean	3.19	3.4	3.36	41.29	38.98	43.88	4.51	4.53	4.36	3.40	3.59	3.70
Std. Deviation	1.01	1.04	1,00	28.25	29.09	29.03	0.90	0.77	0.82	1.22	1.24	1.21
Shapiro-Wilk	0.93	0.93	0.94	0.94	0.92	0.94	0.95	0.98	0.96	0.97	0.96	0.97
P-value of Shapiro-Wilk	< .001	< .001	< .001	< .001	< .001	< .001	0.001	0.15	0.00	0.02	0.00	0.01
Minimum	1.00	1.00	1.00	0.00	0.00	0.00	2.20	2.60	2.00	1.00	1.00	1.00

Note. Excluded 2 rows from the analysis that correspond to the missing values of the split-by variable Profile Information Type

Figure 1

Q-Q Plots for the Normality Assumption Checks for Other-focused Trust

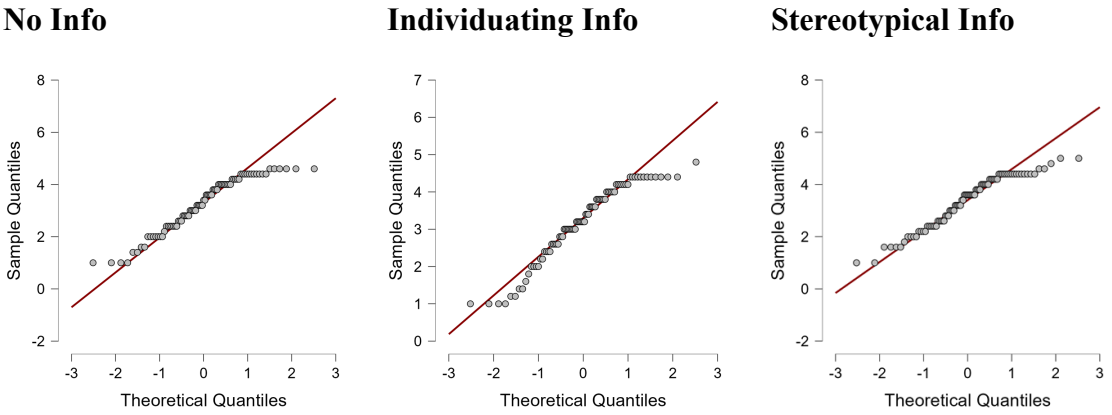

Figure 2

Histograms for the Normality Assumption Checks for Other-focused Trust

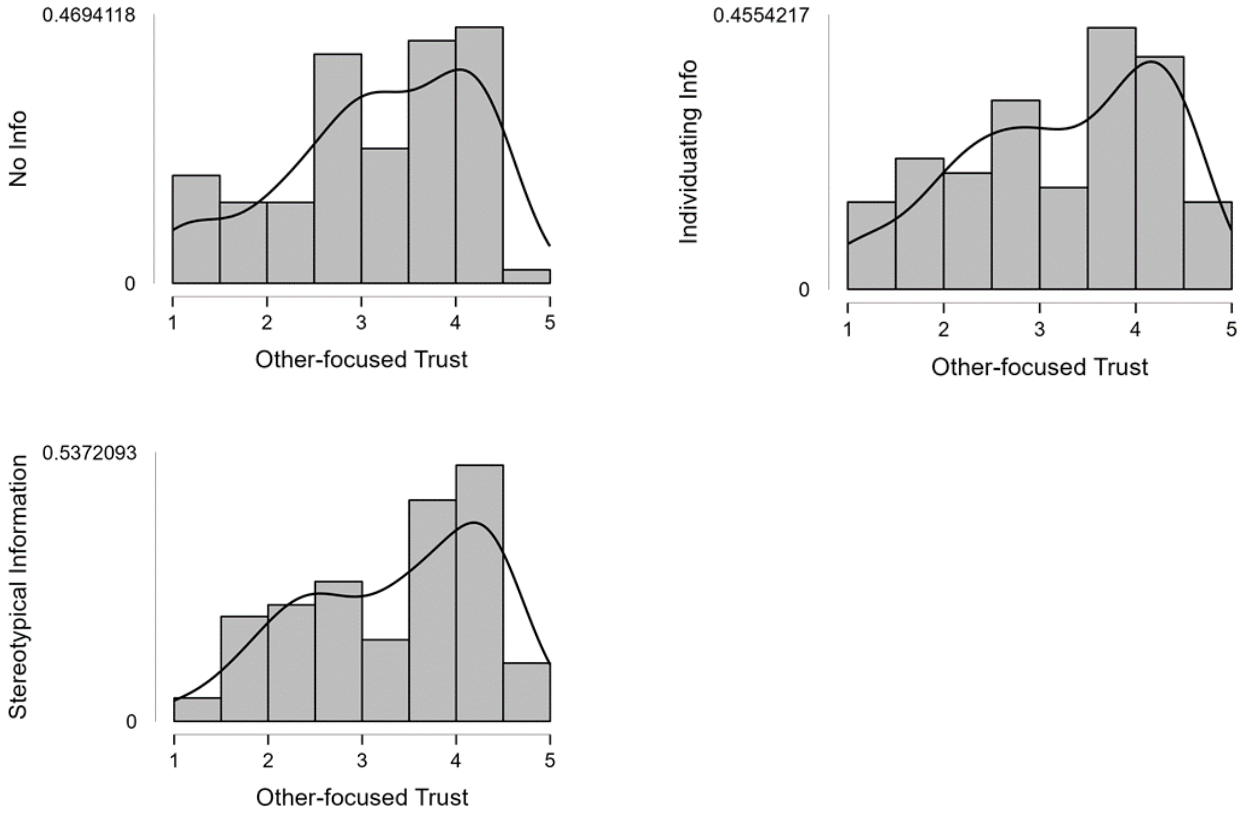

Figure 3

Q-Q Plots for the Normality Assumption Checks for the Feelings Thermometer

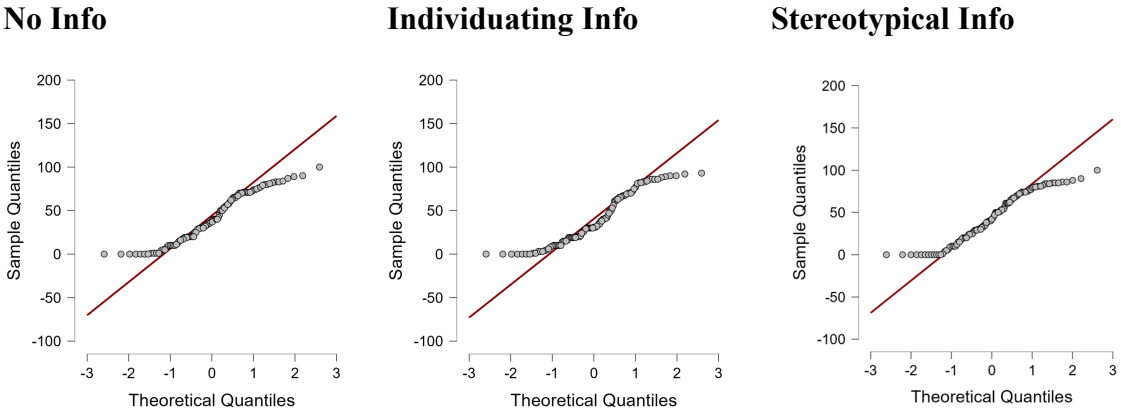

Figure 4

Histograms for the Normality Assumption Checks for the Feelings Thermometer

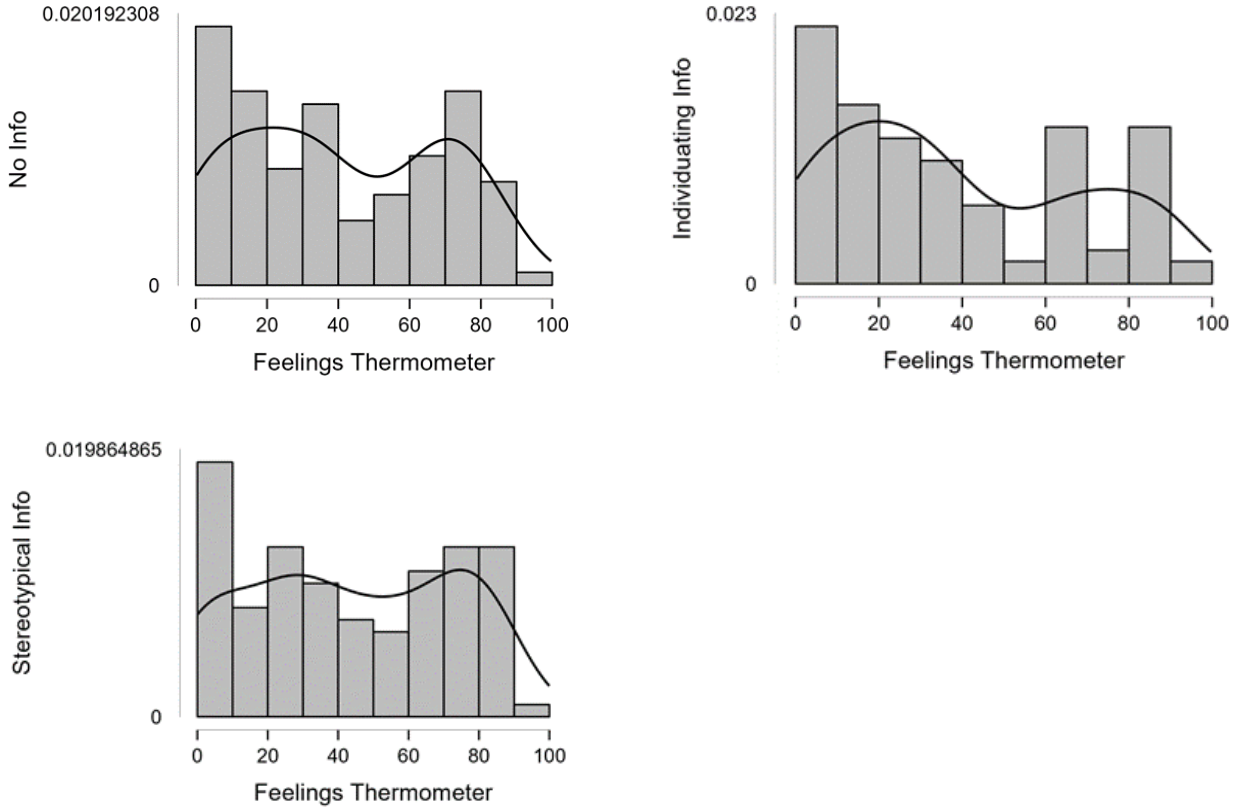

Figure 5

Q-Q Plots for the Normality Assumption Checks for the Personality Ratings

No Info **Individuating Info** **Stereotypical Info**

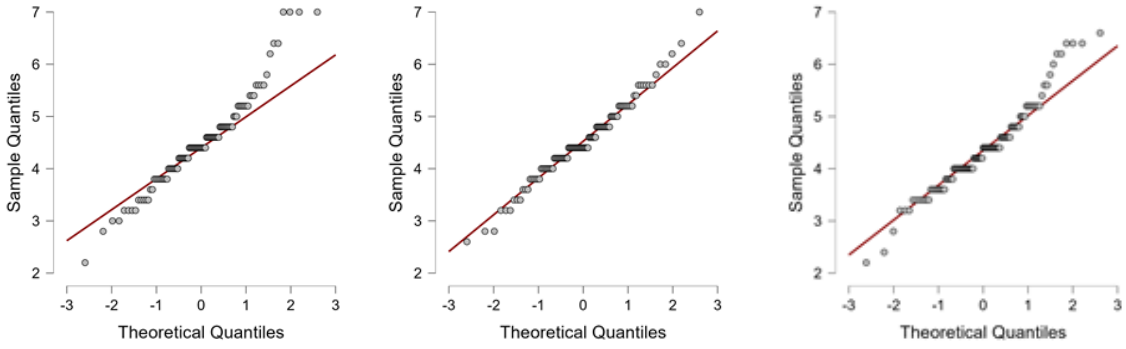

Figure 6

Histograms for the Normality Assumption Checks for the Personality Ratings

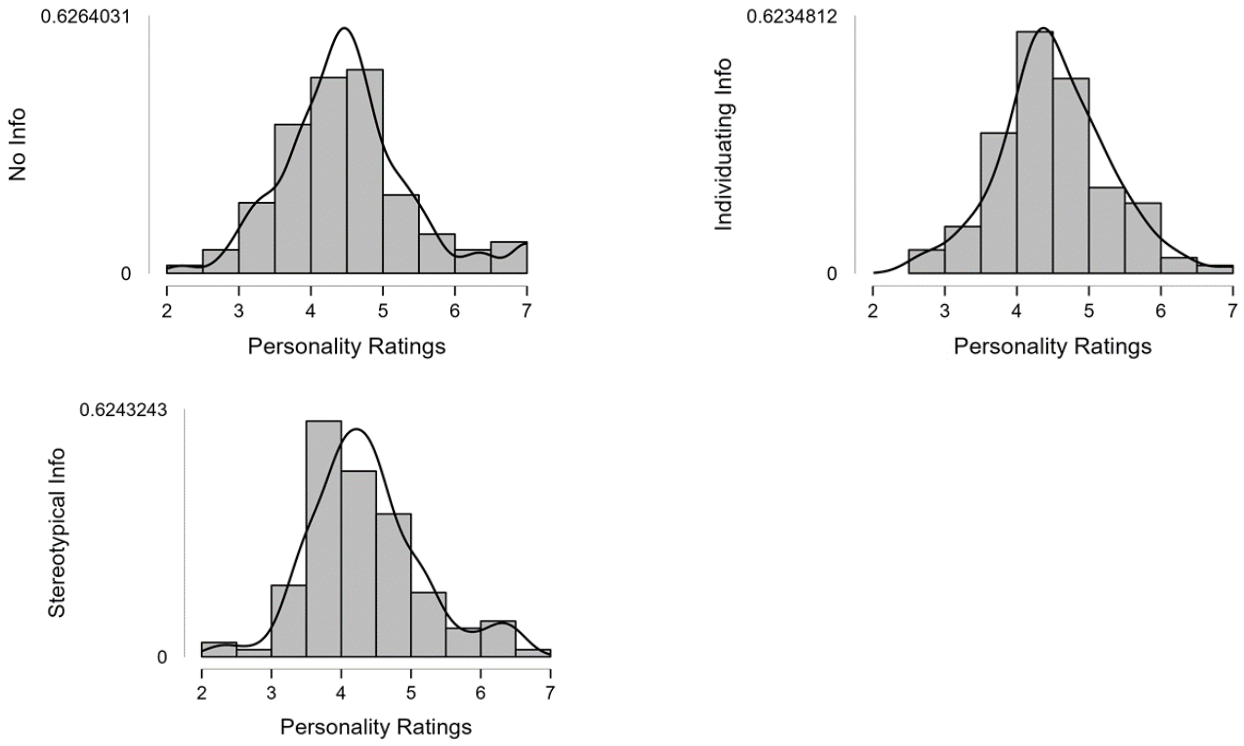

Figure 7

Q-Q Plots for the Normality Assumption Checks for the Social Distance Scale

No Info **Individuating Info** **Stereotypical Info**

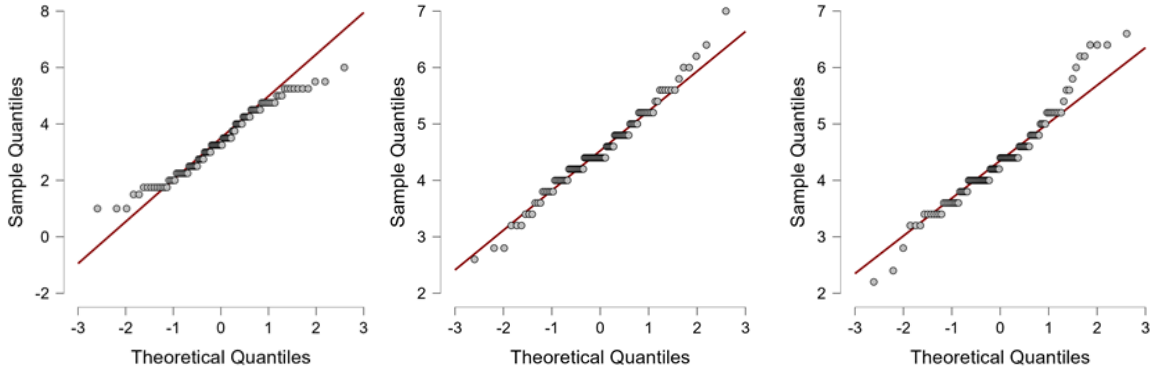

Figure 8

Histograms for the Normality Assumption Checks for the Social Distance Scale