

CONSEQUENCES OF PERCEIVED GROUP VARIABILITY: HOSTILE OUTGROUP
BEHAVIORS

by

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ABSTRACT

The present study investigated the link between perceptions of group variability and intergroup hostility. Three-hundred and twenty undergraduates delivered noise blasts to members of their ingroup and a competing outgroup after receiving bogus feedback about the variability of personality scores for each group. It was hypothesized that under conditions of outgroup homogeneity, participants would demonstrate the greatest levels of outgroup hostility. While the average levels of outgroup hostility were greatest under conditions of outgroup homogeneity, there were no significant differences in outgroup hostility among the four conditions. I argue that levels of perceived threat were not sufficiently raised to obtain a link between perceptions of group variability and intergroup threat. Future manipulations are proposed (e.g., valence and stereotypicality), that are likely to increase perceived threat and realize the link between outgroup homogeneity and intergroup hostility.

INTRODUCTION

Research suggests individuals perceive members of their own groups (ingroup) as more diverse than members of other groups (outgroups), an effect known as outgroup homogeneity (Jones, Wood, & Quattrone, 1981; Judd & Park, 1988; Linville, Fischer, & Salovey, 1989). This phenomena is witnessed in broad social categories, such as gender and age (Park & Rothbart, 1982; Linville, 1982), as well as more exclusive groups like sororities (Jones, Wood, & Quattrone, 1981). Most research on outgroup homogeneity has focused on the moderators of the effect. For example, previous research has found that outgroup homogeneity effects are strongest when the ingroup is smaller than the outgroup (Mullen & Hu, 1989; Simon & Brown, 1987; Simon & Mummendey, 1990; Simon & Pettigrew, 1990), in non-minimal groups than minimal groups (Mullen & Hu, 1989) and in high status groups than low status groups (Boldry & Kashy, 1999). The research that has explored consequences of perceived group variability has concentrated on cognitive outcomes (Lambert, 1995; Linville, 1982; Linville & Jones, 1980) and ingroup favoring behaviors (Mummendey, Simon, Dietze, Grunert, Haeger, Kessler, Lettgen, & Schaferhoff, 1992). The proposed research will be the first to explore the relationship between perceptions of group variability and hostile intergroup behaviors.

Consequences of Perceived Group Variability

Cognitive Consequences

Research demonstrates that individuals are more likely to generalize stereotypes of an entire group to individual members when the group is perceived as homogeneous rather than heterogeneous (Ryan, Judd, & Park, 1996). In part, this may be because persons who perceive group members as relatively variable are more likely to seek out more and different information about group members and are less likely to make judgments about ambiguous behaviors based on group stereotypes (Ryan, Bogart, & Vendor, 2000). In addition, persons who perceive an outgroup as homogeneous, are more likely to generalize from the behavior of an individual outgroup member to the entire group (Nisbett, Krantz, Jepson, & Kunda, 1983). However, research demonstrates that cognitive, affective and behavioral components of attitudes can function independently (Mackie & Smith, 1998), leaving open the question of whether perceptions of group variability affect behavior toward outgroup members.

Ingroup Favoring Behaviors

In general, research exploring the behavioral effects of perceived group variability suggests that persons favor the ingroup over the outgroup both in token allocation paradigms and in group product evaluations (e.g., Vanbeselaere, 1991). These ingroup favoring behaviors are most evident under conditions of perceived group homogeneity for one group and heterogeneity for the other than under conditions of equal group

variability. However, research has demonstrated that ingroup bias and outgroup derogation are independent constructs (Brewer, 1979; Hinkle & Schopler, 1979). Thus, the question remains whether perceptions of group variability affect hostile behaviors towards outgroup members.

Theoretical Foundation: Perceived Threat

Perceptions of intergroup threat are the primary theoretical reason that perceptions of group variability might be related to behavioral hostility. Research suggests that a homogeneous outgroup is perceived as more threatening than a heterogeneous outgroup (Corneille, O., Yzerbyt, V.Y., Rogier, A., & Buidin, G., 2001) perhaps because such groups are perceived as more able to mobilize for collective action. Research has also demonstrated that only under the pretext of threat are perceptions of group homogeneity and negative evaluations positively correlated (Henderson-King, Henderson-King, Zhermer, Posokhova, & Chiker, 1997). Therefore, perceptions of variability may lead to hostile behaviors against an outgroup because more homogeneous outgroups are perceived as threatening.

Present Study

In the following study, groups of 8 participants were told the experiment investigated the impact of audio distractions on cognitive performance, and by

completing an initial task, they were categorized into one of two equal groups in competition on a cognitive task. Perceptions of group variability were manipulated using bogus feedback about scores of ingroup and outgroup members on a personality measure. Intergroup hostility was measured by level of audio distraction delivered by each participant to ingroup and outgroup members during the cognitive task.

The purpose of the present study is to define the conditions under which perceptions of group variability lead to outgroup hostility. Because Ellemers and colleagues (1997) demonstrated that competition is a necessary condition for differential assignment of negative stimuli between the ingroup and outgroup, the present study begins with a competitive context. This study is designed to explore whether perceptions of variability on ambiguous dimensions lead to behavioral hostility against the outgroup.

METHOD

Participants

Three hundred and twenty introductory psychology undergraduates (160 male, 160 female) at Montana State University received partial course credit for their participation. Five participants (3 males, 2 females) incorrectly identified to which group they belonged and were excluded from further analyses.

Materials

Categorization Task

Participants viewed eleven slides containing a varied amount of dots, each displayed for two seconds. Participants estimated the number of dots and were told that the performance on this categorization task was related to cognitive ability. After completing the task, participants were told that they and three other participants in their session were underestimators, whereas the remaining four participants were classified as overestimators. Dot slides were presented in random order to each participant.

Group Variability Manipulation

Participants completed a bogus subliminal personality measure ostensibly to control for personality predispositions that could be possible confounds. Participants

viewed eight pairs of paintings and indicated which painting they preferred. After completing the painter preference task, participants were given false feedback about the personality scores of members of their group and the other group. Participants did not know which scores belonged to them, and the scores were not explained except to say that similar scores reflect similar personalities.

Participants were randomly assigned to one of four conditions. In the relative ingroup homogeneity condition, participants received bogus feedback that members of the ingroup scored similarly in the personality disposition measure ($M= 50$, $SD= 3.16$), whereas members of the outgroup had varied scores ($M= 50$, $SD= 35.59$). In the relative outgroup homogeneity condition, participants received bogus information that members of the outgroup scored similarly on the personality disposition measure ($M= 50$, $SD= 3.16$), whereas members of the ingroup had varied scores ($M= 50$, $SD= 35.59$). In the homogeneous equal variability condition, participants were informed that members of the ingroup scored similarity ($M= 50$, $SD= 3.16$), as did members of the outgroup ($M= 50$, $SD= 3.16$). In the heterogeneity equal variability condition, participants were informed that members of the ingroup differed in scores on the personality measure ($M= 50$, $SD= 35.59$), as did members of the outgroup ($M= 50$, $SD= 35.59$). It is important to note that the mean scores in each condition were held constant, whereas the standard deviation between conditions was manipulated.

Outgroup Hostility

Behavioral hostility was measured by the level of audio distraction delivered to members of the ingroup and outgroup. Participants were asked to select an audio distraction on a continuum from 1 (*the lowest sound perceptible by the human ear*) to 110 (*the loudest sound we can deliver without causing permanent ear damage*) to be delivered to both ingroup and the outgroup members. Participants were asked to select the level of audio distraction to be delivered to the ingroup and outgroup in random order. Each participant selected the levels of noise blasts to both the ingroup and outgroup over three trials, which were averaged to create the ingroup and outgroup hostility index. The ingroup index's $\alpha = .23$, and the outgroup index's $\alpha = .28$.

Perceived Threat

Participants completed several questions, constructed by the author, designed to tap the degree of outgroup threat perceived by each participant. Participants answered four questions on 7-point scales anchored by 1 (*not at all*) and 7 (*very much*), determining the extent to which they felt that: (1) The outgroup is a threat to the ingroup (2) The outgroup may have scored better than the ingroup on the cognitive task (3) The ingroup's chance to be entered in the lottery was threatened by the outgroup (4) The outgroup may have diminished the ingroup's chance of winning the lottery. Items were presented in random order and were averaged to create a composite threat score ($\alpha = .82$).

Manipulation Checks

To make certain that participants understood the group variability manipulation as intended, participants completed a series of measures of perceived group variability. Park and Judd (1990) suggested that perceived group variability is a multidimensional construct composed of two factors: Dispersion and stereotyping. Dispersion reflects the degree to which persons perceive group members as deviating from the group mean, whereas stereotypicality reflects the extent to which the group as a whole is perceived as matching the group stereotype. Because the goal of the present study was to manipulate the perceived dispersion of the group, I employed the range measure as the primary manipulation check. Participants completed a range rating of the ingroup and the outgroup, which required participants to indicate on 7-point scales, anchored by 1 (*very low*) and 7 (*very high*), where the group member who scored highest on the personality measure belonged and where the group member that scored lowest on the personality measure belonged.

The similarity measure required participants to indicate on a 7-point scale, anchored by 1 (*not at all*) and 7 (*very much*), the degree to which ingroup and the outgroup members were similar to one another and different from one another. Park and Judd (1990) found that similarity related more strongly to dispersion than stereotypicality, therefore the present study includes similarity as an additional manipulation check. Stereotypicality cannot be measured in the present context because there were no preexisting stereotypes of these laboratory created groups.

To ensure that participants perceived the average of the scores accurately, participants indicated, on a 7-point scale, anchored by 1 (*low*) and 7 (*high*), where they believed group members fell on average on the personality feedback. Each participant rated the ingroup and the outgroup in random order.

Finally, participants completed a group categorization manipulation check, where they were asked to indicate to which group they belonged. Participants that provided an incorrect answer were excluded from further analysis, because it was crucial that participants understood to which group they belonged.

Procedure

Participants were recruited in same-sex groups of eight and seated in separate cubicles. All measures were completed on personal computers. Upon entering the laboratory, participants were told that they will be engaging in a study investigating the impact of audio distractions on cognitive performance. In order to bolster the cover story, the participants were told that they would be categorized into two groups based on their tendency to overestimate or underestimate, and that the two groups were to compete against one another on a cognitive task. Participants were told that they were to complete a cognitive task, the “lost on the moon problem,” while receiving audio distractions delivered through headphones. The “lost on the moon problem” provides participants with fifteen items, which they must rank on a scale of importance for survival, if a group were to be stranded on the moon and must make a 200-mile journey across the moon to

meet the mother ship. Participants were told that their responses would be graded as a group, according to criteria provided by NASA. Participants were instructed that the group with the highest score on the task would be entered into a lottery for \$100 (to be split evenly among the four group members). After putting on headphones connected to their computers, participants completed the group categorization task and were told that they and three other members in the session were members of the underestimator group, whereas the four other participants were members of the overestimator group.

Participants were then asked to complete the painter preference task, explained as a subliminal personality measure, in order to control for personality predispositions that could be possible confounds. Upon completion of the task, participants received bogus feedback about the scores of their group (underestimators) and the other group (overestimators), as described in the group variability manipulation section.

Participants were then told that one member of their group must be selected to deliver the audio distraction to members of the ingroup (underestimators) and outgroup (overestimators). Each participant randomly chose a number between 1 and 100 and were instructed that whoever was closest to the random number generated by the computer was selected to deliver the audio distraction. Although each participant was told that they were the sole person selected, all participants were instructed that they were chosen to deliver the audio distraction, ranging from 1 (*the lowest sound perceptible by the human ear*) to 110 (*the loudest sound we can deliver without causing permanent ear damage*). In order to eliminate self interest as a potential explanation for differential noise allocation to the ingroup and outgroup, participants were told that because they

were selected to deliver the audio distraction, they were not entered into the lottery.

Participants were instructed to choose values to deliver noise blasts to the ingroup and the outgroup over three trials. Participants were informed that the noise distractions were delivered once the two groups began the lost on the moon task. At this point, each participant were instructed to wait until the whole group had completed this portion of the experiment.

In order to legitimize the cover story, each participant was told that they would hear a audio distraction, so that other members of the group could not identify the individual responsible for delivering the audio distraction. Over the headphones, all participants heard a classical music interlude for approximately five minutes.

Participants were told that they were allowed to play Solitaire while the other members of the two groups completed the cognitive task. After five minutes, participants completed the perceived threat and manipulation checks. Participants were thanked for their participation, debriefed, and excused.

RESULTS

First, it was important to ensure that participants perceived group variability as intended. The accuracy of the participants' perceptions were verified through three sets of manipulation checks: The range, similarity, and mean measure. Each set of manipulation checks were analyzed using a 4 (condition: Relative ingroup homogeneity, relative outgroup homogeneity, relative homogeneity equal, or relative heterogeneity equal) X 2 (target group: Ingroup or outgroup) mixed model ANOVA with repeated measures on the last factor¹. It was predicted that for each manipulation check, there would be no significant difference between ratings of the ingroup versus the outgroup in the equal homogeneity and equal heterogeneity conditions. However, it was expected that participants in the ingroup homogeneity condition would indicate a greater range among members of the outgroup than the ingroup and greater similarity among members of the ingroup than the outgroup. Conversely, it was expected that participants in the outgroup homogeneity condition would indicate a greater range among members of the ingroup than the outgroup and greater similarity among members of the outgroup than the ingroup

Manipulation Checks

Range Measure

Analyses produced the predicted condition x group interaction, $F(3,308)= 52.13$, $p<.01$. Simple main effects tests exploring ingroup vs. outgroup perceptions for each condition separately revealed a group effect for the ingroup homogeneity condition, $F(1,72)= 36.31$, $p<.01$ and the outgroup homogeneity condition, $F(1,84)= 51.88$, $p<.01$. In the ingroup homogeneity condition, participants indicated a greater range among members of the outgroup ($M= 4.33$, $SD= 1.63$) than the ingroup ($M= 2.90$, $SD= 1.16$), and in the outgroup homogeneity condition, participants indicated a greater range among members of the ingroup ($M= 5.26$, $SD= 1.73$) than the outgroup ($M= 3.39$, $SD= 1.68$). As intended, there were no group effects in either the equal homogeneity, $F(1,76)= .15$, ns or equal heterogeneity conditions, $F(1,76)= .07$, ns .

Similarity Measure

Because Park & Judd (1990) found dispersion and similarity were related, a similarity manipulation check was also included. Analyses produced the predicted condition x group interaction, $F(3,312)= 105.53$, $p<.01$. Simple main effects tests, exploring ingroup vs. outgroup perceptions for each condition separately, revealed a group effect for the ingroup homogeneity condition, $F(1,75)= 84.81$, $p<.01$ and the outgroup homogeneity condition, $F(1,85)= 119.76$, $p<.01$. In the ingroup homogeneity condition, participants indicated greater similarity among members of the ingroup ($M=$

4.91, $SD= 1.61$) than the outgroup ($M= 2.59$, $SD= 1.29$), and in the outgroup homogeneity condition, participants indicated greater similarity among members of the outgroup ($M= 5.29$, $SD= 1.64$) than the ingroup ($M= 2.72$, $SD= 1.41$). As intended, there were no group effects in either the equal homogeneity condition, $F(1,76)= 0.54$, *ns*, or in the equal heterogeneity condition, $F(1,76)= 0.00$, *ns*.

Mean Measure

The mean measure was included to ensure that participants perceived the mean scores accurately. Recall that the actual means were held constant across all conditions. However, analyses produced a condition x group interaction, $F(3,312)= 4.11$, $p<.01$. Simple main effects tests exploring ingroup vs. outgroup perceptions for each condition separately revealed a group effect for the ingroup homogeneity condition, $F(1,75)= 4.52$, $p<.05$ and the outgroup homogeneity condition, $F(1,85)= 2.91$, $p<.10$. In the ingroup homogeneity condition, participants indicated a greater mean for the outgroup ($M= 5.38$, $SD= 1.20$) than the ingroup ($M= 5.09$, $SD= .88$). In the outgroup homogeneity condition, participants suggested a greater mean among the ingroup ($M= 5.30$, $SD= 1.13$) than the outgroup ($M= 5.08$, $SD= .79$). In the equal heterogeneity condition, analyses indicated an unexpected group effect, $F(1,76)= 5.19$, $p<.05$. The mean was greater for the ingroup ($M= 5.62$, $SD= 1.20$) than the outgroup ($M= 5.42$, $SD= 1.08$). As intended, there was no group difference in the equal homogeneity condition, $F(1,76)= 1.53$, *ns*.

Intergroup Hostility

The data were analyzed using a 2 (sex: Male or female) X 4 (condition: Relative ingroup homogeneity, relative outgroup homogeneity, relative homogeneity equal, or relative heterogeneity equal) X 2 (target group: Ingroup or outgroup) mixed model ANOVA with repeated measures on the last factor.² It was expected that participants would deliver the highest audio blasts when the outgroup was perceived as homogeneous relative to the ingroup, yielding a significant group x condition interaction. Results failed to find the predicted interaction. There was only a significant sex effect, such that males ($M= 55.23$, $SD= 21.08$) delivered higher noise blasts than females ($M= 49.03$, $SD= 20.58$), $F(1,308)= 10.73$, $p<.01$.

Perceived Threat

The data were analyzed using a one-way between subjects ANOVA (condition: Relative ingroup homogeneity, relative outgroup homogeneity, relative homogeneity equal, or relative heterogeneity equal)³. There was no evidence of the predicted condition effect on threat, indicating that perceptions of threat were equivalent across groups. The means in the ingroup homogeneity condition ($M= 3.01$, $SD= 1.53$), outgroup homogeneity condition ($M= 3.28$, $SD= 1.49$), equal homogeneity condition ($M= 3.19$, $SD= 1.31$), and equal heterogeneity condition ($M= 3.09$, $SD= 1.44$), demonstrated that threat levels did not significantly differ by condition, $F(3,312)= .61$, $p<.61$ It was

predicted that threat would be a mediating factor between perceived variability and behavioral hostility. Although I predicted a mediation model, because threat did not differ by condition, there was no reason to examine such a mediation model.

DISCUSSION

This study was designed to explore the behavioral effects of perceptual group variability on ambiguous dimensions with regard to intergroup hostility. Based on previous research on ingroup bias (Gaertner & Schopler, 1998; Vanbesseere, 1991), it was anticipated that participants would deliver the highest audio blasts when the outgroup was perceived as homogeneous relative to the ingroup. That is, hostile behaviors towards the outgroup should have been most apparent in the relative outgroup homogeneity condition. While hostility means are in the right direction, such that behavioral outgroup hostility was more evident in outgroup homogeneity conditions, the predicted interaction did not emerge.

These patterns are not likely a result of ineffective manipulations. To the contrary, perceptions of group variability were manipulated to the intended degree in this study. Analysis of the range and similarity measures demonstrated that participants perceived the ingroup as homogenous in the ingroup homogeneity condition and the outgroup as homogeneous in the outgroup homogeneity condition. As intended, participants in the equal homogeneity and equal heterogeneity conditions did not perceive any significant differences between the ingroup and outgroup.

Several issues revealed in this study that must be addressed in future studies in order to fully realize the potential link between perceptions of group variability and intergroup hostility. First, the coefficient alphas for the audio distraction measure were very low, as participants selected varied and inconsistent levels of distraction over the

three trials. A possible solution to this issue is to remind participants of the potential rewards while they select each level of audio distraction. Increasing the frequency and recency of reward cues may remind participants of the present competition, the possible benefits of their actions, and the potential threat posed by the outgroup in achieving the reward. The potential rewards for their actions may stay in their present, conscious thought and therefore, increase perceived threat. Furthermore, implementing immediate rewards for participants may increase levels of competition and threat, as opposed to entering participants in a lottery to be won in the future. In addition, introducing a guaranteed reward may induce further competition and threat, where participants are told that the winner of that particular interaction will definitely receive the monetary reward, not simply entered into a lottery. These methodological solutions should generate more consistent audio distractions across the three trials and raise the coefficient alphas for the measure.

Second, in addition to increasing the frequency and recency, reward cues could be presented in a group-based context. Perceived competition may be attenuated in the present study because participants are told they are excluded from the competition since they are selecting the levels of audio distraction. However, identification with the ingroup (i.e., social identity) could be primed with the reward cues, and participants could be reminded that their actions could influence their group's chances of winning the competition against the outgroup. Research demonstrates that while an individual's self-interest in monetary rewards are directly linked to the ingroup's absolute profit, individuals will sacrifice personal gains and favor the ingroup in order to achieve

intergroup differences in reward allocation (Turner, Brown, & Tajfel, 1979).

Consequently, by priming ingroup identification and group-based reward, the coefficient alphas for the intergroup hostility measure, perceived competition levels, and perceived threat may be further raised. Research also suggests that in minimal group paradigms, individuals favor the ingroup behaviorally because they follow scripts that are currently accessible (Hertel & Kerr, 2001). Thus, a stem-completion task could be included in the study, prior to the intergroup hostility measure, where group-based concepts (e.g. loyalty, team) would be primed. Such a task may lead to increased ingroup identification and favoritism implicitly, and therefore, completion of the task may motivate participants to further assist the ingroup obtain the monetary reward, despite the lack of self-interest.

Third, the mean manipulation check yielded an unintended group x condition interaction. Despite holding the mean constant across conditions, participants in the outgroup homogeneity condition indicated that the ingroup scored higher on average than the outgroup, whereas participants in the ingroup homogeneity condition indicated that the outgroup scored higher on average than the ingroup. It may be that the extreme positive scores provided under conditions of heterogeneity are especially salient for participants in comparison to the moderate scores provided under conditions of homogeneity.

Results also suggested that participants in the equal heterogeneity condition indicated that the ingroup scored higher on average than the outgroup, whereas participants in the equal homogeneity condition indicated that the ingroup and outgroup scored equally. It may be that the extreme scores included in the bogus personality

feedback under conditions of equal heterogeneity created uncertainty among participants. That is, participants perceived that scores differed and instead of attributing the differences among groups to variability, made the less complicated attribution that one group must have scored higher than the other group. Because participants were uncertain, they employed the common assumption that the ingroup scored higher than the outgroup.

Finally, greater manipulation of perceived threat is needed in order to fully realize a link between perceptions of group variability and intergroup hostility. Participants did not perceive the outgroup as more threatening under conditions of homogeneity than under conditions of variability. If threat is indeed a mediator of the link between group perceptions and outgroup hostility, greater threat must be induced. Several methods could be employed to increase perceived threat. I have already discussed methodological changes that could be induced in the study protocol to increase perceived threat such as increasing the frequency, immediacy, and certainty of rewards as well as priming the social identity prior to completing the noise allocation task. In addition, properties of the personality feedback (e.g., valence, stereotypicality) might be manipulated to increase perceived intergroup threat. These additional manipulations are discussed in the following section.

FUTURE STUDIES

Future research should include perceptions of positive and negatively valenced perceptual dimensions in the group variability manipulation. It may be that outgroup homogeneity is a catalyst for intergroup hostility only when the perceptual dimensions are negative. Specifically, a negatively valenced homogeneous outgroup may produce a sufficient amount of perceived threat to lead to the predicted outgroup hostility. With sufficient levels of threat, it is predicted that perceptions of group variability will lead to intergroup hostility through perceived threat.

The procedure and measures for future studies would duplicate those of the present study (with the appropriate methodological changes noted above), except that the scores from the personality measure would either be a positively or negatively valued. Specifically, positive scores would reflect a personality dimension that has been rated as highly positive, whereas a negative scores would reflect a personality dimension that has been rated as highly negative. This study would investigate whether perceptions of trait valence is a contributing factor that drives intergroup hostility. Historical events have shown that groups that have been targets of intergroup hostility, such as Jews during the Holocaust, were perceived by another group as homogenous on negative traits. These common negative traits created the perception that such a group was more dangerous, and the homogeneity of the group created the perception that they could easily mobilize against another group. Research suggests that groups perceived as homogeneous are seen as more able to mobilize for collective action and therefore perceived as more threatening

(Corneille, O., Yzerbyt, V.Y., Rogier, A., & Buidin, G., 2001). Furthermore, research demonstrates that individuals view negatively perceived groups as more threatening to the self than positively perceived groups (Zarate, Garcia, Garza & Hitlan, 2004). Therefore, negatively valenced outgroups may be perceived as more cohesive unit, thereby posing a greater threat

In addition to the inclusion of valence as a perceptual dimension of group variability, further manipulations may be added to increase perceptions of outgroup threat. Stereotypical dimensions may also be included in the explanation of scores in the group variability manipulation, where scores are explicated in terms of specific personality traits, such as conservatism and liberalism. Research suggests a direct link between perceived threat and negative stereotypes (Stephan & Stephan, 2000). Consequently, by presenting stereotypicality as a dimension of group variability may further induce perceived threat. Second, a future study could offer participants immediate rewards to participants, where the experimenter would state that the winning group would receive a monetary reward after each session. This may increase participants' incentive to further distract the outgroup and assist the ingroup. While this manipulation may not create a difference in levels of delivered audio distraction across conditions, it may increase the consistency of behavioral hostility responses across trials. That is, the coefficient alpha for the intergroup hostility measure would be increased, and it would increase participants' interest in participation and competition. With the above stated added manipulations, the problems of the first study would be addressed, and most importantly, levels of perceived threat of the outgroup would be enhanced.

Conclusions

History suggests that outgroup hostility occurs with very negative homogenized perceptions of outgroup members, as in such historical instances of outgroup hostility as the Holocaust, the Israeli-Palestinian conflict, and Japanese internment camps during World War II. Research has shown that in Israeli adolescents, stereotypic perceptions and attitudes towards outgroups become more negative after terrorist attacks, demonstrating that intergroup perceptions and attitudes are context-based (Bar-Tel & Labin, 2001). Furthermore, Doojse and Branscombe (2003) displayed that ingroup identification, exaggerated by negative behavior of group, as in the Second World War in Germany, significantly predicts outgroup homogeneity and perceptions of differences between groups. While such research shows that exacerbated stereotypes and negative attitudes may be positively correlated with hostile behavior, the current research investigates whether perceptions of group variability may lead to the hostile intergroup behavior.

Although this and future studies were designed to investigate the effect of perceived group variability as a cause of hostile behaviors against the outgroup, it may be that the relationship is bidirectional. That is, perceptions of group homogeneity may also be a result of hostility. If persons behave hostilely towards outgroup members out of their own volition, such behavior may cause the individual to perceive the outgroup as more homogeneous. This potential phenomenon may occur as the individual seeks cognitive justification for behavioral hostility towards the outgroup, which would be

supported by Festinger's theory of cognitive dissonance (1957). A hostile act towards an outgroup may arouse dissonance within an individual, and thereby causing the individual to seek validation by modifying their perceptions of the outgroup, which may strengthen the connection between perceptions of group variability and outgroup hostility. This possible relationship presents an avenue for future research.

The present study demonstrates the importance of perceived threat as a mediating factor in the link between perceptions of group variability and intergroup hostility. The design failed to stimulate the necessary amount of perceived threat among participants, demonstrating that perceptions of group variability alone are not sufficient to induce intergroup hostility. With increased levels of perceived threat, perceptions of a homogeneous outgroup should generate significantly greater amounts of hostility.

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FOOTNOTES

1. Analyses of manipulation checks were conducted with sex as a predictor, however results did not reveal any sex effects. Consequently, sex was not included in the results for all three manipulation checks.

2. Participants were inconsistent in their delivery of audio blasts across the three trials. The alphas for the intergroup hostility measure were very low, ingroup hostility $\alpha = .23$ and outgroup hostility $\alpha = .28$, showing that while participants may have selected high levels of intergroup hostility in some trials, they were not delivering a consistent level across all three trials. Given the poor reliabilities, tests were conducted on the individual trials. In delivering the noise blasts, there was not a significant group x condition interaction between conditions in the first trial, $F(3,308) = .74$, *ns*, in the second trial, $F(3,308) = 1.69$, *ns*, or in the third trial, $F(3,308) = 1.43$, $p = .23$.

3. Analysis of perceived threat was conducted with sex as a predictor, however results did not reveal any sex effects. Consequently, sex was not included in the results for perceived threat.