

Investigating the Impact of Racial Diversity in Decision-making Groups: The Moderating Role of Relationship Conflict

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Abstract

To date, numerous research endeavors have documented both the positive and negative effects of racial diversity on numerous group-level performance outcomes. Indeed, a reading of the racial diversity literature would lead one to make one of two contradictory predictions regarding the effects of racial diversity in groups. In the interest of solving this theoretical issue, both perspectives were synthesized, such that racially diverse groups were expected to outperform homogeneous groups when performing a decision-making task, but only when relationship conflict between members was minimized. In addition, the association between racial diversity and decision-making quality was expected to be negative when relationship conflict between members was high. A study is reported which investigates the validity of and finds general support for this proposition (i.e., racial diversity in groups increased the group's ability to make accurate decisions, but only under conditions in which relationship conflict between group members was kept to a minimum). A discussion is offered in which the implications of these results are entertained.

Diversity is defined commonly as “variation based on any attribute people use to tell themselves that another person is different” (Mannix & Neale, 2005, p. 33). In addition, diversity can be further differentiated by distinguishing between surface- and deep-level diversity characteristics (Mohammed & Angell, 2004; Phillips, Northcraft, & Neale, 2006). Specifically, whereas surface-level diversity factors represent visible traits that vary between group members (e.g., ethnicity), deep-level diversity characteristics represent attributes that are not readily noticeable but differ between group members nonetheless (e.g., attitudes). To date, diversity scholars have used this classification to investigate the extent to which numerous types of group-level diversity factors affect group-level dynamics (e.g., cohesion; Webber & Donahue, 2001). Scholars have also used this classification to investigate the extent to which group-level diversity factors impact group-level performance (Bell, 2007; Bell, Villado, Lukasik, Belau, & Briggs, 2011; Webber & Donahue, 2001). To wit, given the ever-increasing trend toward promoting diversity in organizations, understanding how group-level diversity impacts performance and dynamics has become decidedly important (Mannix & Neale, 2005; Phillips & Apfelbaum, 2012).

Although some consistency is beginning to emerge in the diversity literature, scholars remain divided on the reasons responsible for such effects (Roberson, 2019). Whereas some argue for a more *pessimistic view*, in which the effect of diversity on performance is negative because it induces interpersonal conflict, others argue for a more *optimistic view*, in which the effect of diversity on performance is beneficial

because members integrate heterogeneous perspectives when sharing information and making complex decisions. Specifically, scholars that adopt the pessimistic view invoke similarity–attraction and social identity/categorization theories, which predict that dissimilar others are more likely to experience lower levels of cohesion and greater levels of interpersonal conflict (Berscheid & Walster, 1978; Byrne, 1971; Tajfel & Turner, 1986). Alternatively, scholars that adopt the optimistic view invoke the value-in-diversity hypothesis, which argues that diversity facilitates performance because groups are better able to draw upon the varied expertise of its members when making comprehensive decisions or working on complex tasks (for a review of this literature, see Fernandes & Polzer, 2015; Guillaume, Dawson, Otaye-Ebede, Woods, & West, 2017; Mannix & Neale, 2005; Phillips & Apfelbaum, 2012; Roberson, 2019; van Knippenberg & Mell, 2016; Williams & O'Reilly, 1998).

The literature on racial diversity, which is defined explicitly as group heterogeneity in group members' ethnicity, provides a good example of this divide. To date, numerous research endeavors have documented the negative effect of racial diversity on myriad group-level performance outcomes (Jackson & Joshi, 2004; Jehn & Bezrukova, 2004; Kooij-de Bode, Knippenberg, & van Ginkel, 2008). Moreover, numerous meta-analyses have shown that the effect of racial diversity on group performance is generally negative (Bell et al., 2011; van Dijk, van Engen, & van Knippenberg, 2012; Webber & Donahue, 2001). As has been argued elsewhere (Mannix & Neale, 2005), these patterns of results are produced because racial diversity spurs relationship conflict in groups (Pelled, 1996; Pelled, Eisenhardt, & Xin, 1999; see also Phillips & Apfelbaum, 2012). Relationship conflict, which is defined as "interpersonal incompatibilities" (Jehn, 1995, p. 258), is problematic because it results in feelings of tension, frustration, and social division (De Dreu & Weingart, 2003; de Wit, Greer, & Jehn, 2012; Jehn, 1995; Jehn & Mannix, 2001; Solansky, Singh, & Huang, 2014); indeed, extant meta-analyses on this topic show that relationship conflict is decidedly detrimental to group performance (De Dreu & Weingart, 2003; de Wit et al., 2012; O'Neill, Allen, & Hastings, 2013). As such, if racially heterogeneous groups are more prone to experiencing relationship conflict, and thus lower levels of performance, then these data would provide support for a more pessimistic view, in which the negative effects of racial diversity are said to occur because such groups are disposed to experiencing relationship conflict, social division, or some other form of bias (Fernandes & Polzer, 2015; Guillaume et al., 2017; O'Reilly, Caldwell, & Barnett, 1989; van Dijk et al., 2012; van Knippenberg & Mell, 2016; Williams & O'Reilly, 1998).

Nevertheless, these findings and theoretical arguments are at odds with some evidence that has shown that racial diversity in groups is beneficial for group performance. Presumably, such benefits come to fruition because such groups are better able to integrate unique member information and expertise. For example, when performing a discussion-based task, Antonio et al. (2004) found that racially heterogeneous groups evidenced higher levels of comprehensive thinking skills when compared to racially homogeneous groups. Similarly, McLeod, Lobel, and Cox (1996) found that ideas generated by racially heterogeneous groups were rated as more effective and feasible, and Sommers (2006) found that racially heterogeneous groups deliberated for longer periods of time and shared more information during group discussion (see also Kochan et al., 2003; Kooij-de Bode et al., 2008; Loyd, Wang, Phillips, & Lount, 2013; Phillips et al., 2006; Richard, 2000; Sawyer, Houlette, & Yeagley, 2006). Ultimately, this body of work bodes well for racial diversity in groups, as numerous studies have indicated the positive effects of comprehensive information sharing behaviors in groups. For example, numerous meta-analyses from the hidden profile and information sharing corpuses suggest that sharing unique information promotes better decision-making practices and outcomes in groups. (see Lu, Yuan, & McLeod, 2012; Mesmer-Magnus & DeChurch, 2009; Reimer, Reimer, & Czienskowski, 2010). Thus, in contradiction to the conclusion drawn previously, these data support a more optimistic view; a view in which the positive effects of racial diversity on group outcomes are predicted to be a function of beneficial decision-making dynamics (Hoffman, Harburg, & Maier, 1962; see also Loyd et al., 2013; Mannix & Neale, 2005; Phillips & Apfelbaum, 2012; van Knippenberg & Mell, 2016; van Knippenberg & Schippers, 2007).

Although these bifurcated explanations are intuitive, this contradictory narrative remains problematic for those interested in forwarding a priori theoretical predictions. Indeed, in the interest of solving this theoretical problem, diversity scholars have placed a considerable amount of effort on exploring the impact of numerous moderators (see van Knippenberg & Mell, 2016). For example, in their recent review of this literature, Guillaume et al. (2017) conclude that diverse workgroups are expected to outperform homogeneous groups, but only when they are working on decision-based tasks or when they attenuate social bias (see also Roberson, 2019). As is evident, however, the theoretical problem remains if heterogeneous groups are tasked with solving a complex problem but nevertheless experience relationship conflict. In such situations, heterogeneous groups would not be expected to outperform homogeneous groups. Stated differently, it seems reasonable to assume that both optimistic and pessimistic explanations are dependent on one another, that is, as opposed to arguing that it is one or the other. Ultimately, such reasoning may help explain some of the heterogeneity in effect sizes reported in the recent meta-analysis by van Dijk et al. (2012); specifically, they showed that ethnic diversity in groups was associated positively with performance on high-complexity tasks but also showed that extant variance in effect sizes in this condition remained unexplained.

In the interest of investigating this dynamic, a hypothesis is offered that predicts that when tasked with making decisions, racially heterogeneous groups will outperform homogeneous groups, but only when relationship conflict experienced between members is low. Alternatively, when racially diverse groups experience relationship conflict, the effect of diversity on performance is expected to be negative. Although intuitive, this simple prediction has not been assessed directly in the racial diversity literature. Indeed, despite its intuitive and theoretical appeal, group conflict is rarely considered as a moderator of the effects of diversity on group performance (see Guillaume et al., 2017, p. 295). Moreover, as is noted in a recent review by Roberson (2019), additional research is required to understand the nuanced relationship between workgroup diversity and conflict dynamics. Consequently, such an assessment is expected to provide a contribution of decided value to the group diversity corpus. That is, such an assessment will contribute to the ongoing meta-analytic efforts produced in this arena (Bell et al., 2011; van Dijk et al., 2012) and further contribute to scholars' understanding of how racial heterogeneity in groups impacts objective performance-based outcomes (e.g., decision-making accuracy). This latter contribution is markedly noteworthy, as such assessment is decidedly rare in the racial diversity literature (see van Dijk et al., 2012, p. 45). Ultimately, a critical assessment of this prediction in a controlled laboratory setting is expected to provide a focused and novel set of contributions to the group diversity and performance arenas (Guillaume et al., 2017; Roberson, 2019).

Method

Sample

A convenience sample of undergraduate students at a large Midwestern University signed up to participate in this study in exchange for class credit.¹ A total of 79 three-person groups was sampled (total $N = 237$).² Of those that provided information, 55.7% of the sample ($n = 128$) reported being female, and 44.3% of the sample ($n = 102$) reported being male. Additionally, subjects identified as Caucasian (79.6%, $n = 183$), Black or African American (10%, $n = 23$), Asian (8.3%, $n = 19$), and Hispanic (2.2%, $n = 5$).

¹These data and procedures were taken from Manata (2016), in which a different study was conducted. Of note, none of the additional measures reported in that study impact the results reported.

²Initially, 82 groups were sampled, but 3 groups were given the incorrect information profiles. Because these groups did not have all the information required to make an informed decision, they were dropped from the analysis.

Procedure

Groups were tasked with completing a hidden profile problem (Stasser & Titus, 2003). Hidden profile problems are decision-making tasks that typically occur in two phases. During the first phase, group members are asked to evaluate the favorability of two or more hypothetical alternatives in private (e.g., of two job applicants, choose the most favorable; Cruz, Boster, & Rodriguez, 1997). During the second phase, group members are asked to convene as a group and make a decision regarding the group's preferred alternative (see Wittenbaum, Hollingshead, & Botero, 2004). Of note, candidate profiles are created by assigning both positive and negative characteristics to each of the profiles, and researchers can further designate the optimal solution by assigning a greater number of positive characteristics to one of the candidate profiles.

For groups that can share and pool all the available information, making the correct choice (i.e., choosing the candidate with the most positive traits) is a simple task (see Lu et al., 2012). The hidden profile problem is complicated, however, by the fact that each piece of information is designated as either *shared* (known to all members), *unshared* (known to one member), or sometimes *partially shared* (information that is shared between a subset of members). As a result, group members must share their unique information should they wish to solve the hidden profile problem successfully (i.e., choose the alternative with the most positive characteristics; see Lu et al., 2012). Given this methodological paradigm, hidden profile problems represent an ideal means by which to study the myriad factors that impact information sharing and conflict in groups (Lu et al., 2012; Reimer et al., 2010; Stasser & Titus, 2003; Wittenbaum et al., 2004).

Information profiles were created for three hypothetical candidates—Candidates A, B, and C—all of whom were applying for the same eighth-grade teaching position. Specifically, 30 teacher characteristics associated with either good or bad teaching practices (see Stronge, 2007) were distributed among the three candidate profiles (10 each). Candidate C was assigned the most positive teaching characteristics (six positives v. four negatives, compared to six negatives v. four positives for Candidates A and B) and thereby constituted the optimal decision.³

Group members were first asked to evaluate the profiles of all three candidates and make a private choice regarding their preference. As described above, however, each group member received only a portion of the information about each candidate. As a result, Member 1 was led to prefer Candidate A, Member 2 to prefer Candidate B, and Member 3 to prefer Candidate C. Many hidden profile studies employ information distributions that bias all group members toward the same candidate, but this approach was modified to facilitate a more meaningful information sharing task.

Instrumentation

To investigate the predicted interaction effect, three variables were measured. Specifically, *group racial diversity* and *relationship conflict* were treated as the primary independent variables, whereas *decision accuracy* was treated as the main dependent variable.

Group racial diversity

Racial diversity was quantified using Blau's (1977) heterogeneity statistic, which is used to quantify the degree to which a nominal characteristic (e.g., ethnicity) is dispersed within a population. This equation is defined formally as $1 - \sum p_i^2$, where p equals the proportion of a nominal variable in group i . For example, in a 3-person group in which each member identifies differently (e.g., White, Asian, and Black),

³Two pilot studies were implemented to create the three candidate profiles. The favorability of 100 positive and negative teaching characteristics was assessed, and three profiles of equal strength were created. For additional information, see Manata (2016).

Table 1
Correlations, Alpha, Means, and Standard Deviations (Listwise $N = 79$)

	1	2	3	<i>M</i>	<i>SD</i>
Racial diversity	–			0.21	0.26
Relationship conflict	.20*	(.83)		1.77	0.63
Decision accuracy	.18	–.02	–	0.28	0.45

Note. Reliability coefficients are reported within parentheses.

* $p < .10$.

the coefficient produced is .67 (i.e., $1 - [.33^2 + .33^2 + .33^2]$). Alternatively, if we presume that only one member identifies differently (e.g., 2 Whites and 1 Asian), the coefficient is .44 (i.e., $1 - [.67^2 + .33^2]$). Finally, presuming none of the members identify differently (e.g., 3 Asian), the coefficient produced is 0, which signifies homogeneity. Of note, because the groups sampled were 3-person groups, only three diversity values were possible. Blau's heterogeneity statistic was calculated for each group, with larger values indicating greater group-level racial diversity ($M = 0.21$, $SD = 0.26$).

Relationship conflict

To measure relationship conflict, a 3-item version of Jehn's (1995) classic relationship conflict scale was implemented. Sample items include, "In this group, there was some interpersonal friction among members," and "In this group, personality conflict was evident". All items were positioned on 5-point Likert-type scales (1 = *strongly disagree*, 5 = *strongly agree*), and individual responses were aggregated to the group-level of analysis, $ICC(1) = .35$, $F = 2.64$, $p < .001$, $M = 1.77$, $SD = 0.63$, $\alpha = .83$.⁴

Decision accuracy

Performance was operationalized as decision accuracy. Moreover, because Candidate C was assigned more positive characteristics overall, Candidate C was considered the optimal solution. Consequently, groups that chose Candidate C were coded as making a higher quality decision when compared to those that chose Candidates A or B (i.e., 1 = accurate, 0 = inaccurate; see Lu et al., 2012; Reimer et al., 2010; Stasser & Titus, 2003; Wittenbaum et al., 2004), $M = 0.28$, $SD = 0.45$.

Results

To explore these data, a logistic regression was first estimated using the logit command in STATA 14.0 (STATA, 2015) so that the effects of group racial diversity and relationship conflict on decision accuracy could be investigated (see also Table 1). Of note, both independent variables were centered prior to being entered in to the regression equation. Moreover, to test the interaction effect, an interaction term was created by multiplying both independent variables and then entering it in to the logit regression model (Cohen, Cohen, West, & Aiken, 2013).

As is shown in Table 2, group racial diversity produced an effect in support of the value-in-diversity hypothesis, but this effect failed to reach conventional levels of statistical significance ($B = 1.60$, $SE = 0.99$, $p = .11$). Conversely, relationship conflict in groups produced a small negative effect of insubstantial magnitude ($B = -0.20$, $SE = 0.39$, $p = .62$). The interaction term, however, produced an effect of substantial magnitude ($B = -3.14$, $SE = 1.56$, $p = .04$); a likelihood ratio test also confirmed that the interaction term explained a substantial amount of additional variance in decision accuracy ($\chi^2 = 4.42$, $p = .04$).

⁴For confirmatory factor analysis results, see Manata (2016).

Table 2
Logit Regression Analysis Results

	Odds ratio	<i>B</i>	<i>SE</i>	<i>p</i>	Odds ratio	<i>B</i>	<i>SE</i>	<i>p</i>
Constant	0.37	-0.98	0.26	<.001	0.40	-0.92	0.27	<.001
Racial diversity	4.93	1.60	0.99	.11	6.42	1.86	1.03	.07
Relationship conflict	0.82	-0.20	0.39	.62	0.99	-0.01	0.40	.98
Interaction					0.04	-3.15	1.56	.04

Note. The dependent variable is decision accuracy. Odds ratios were also computed in STATA.

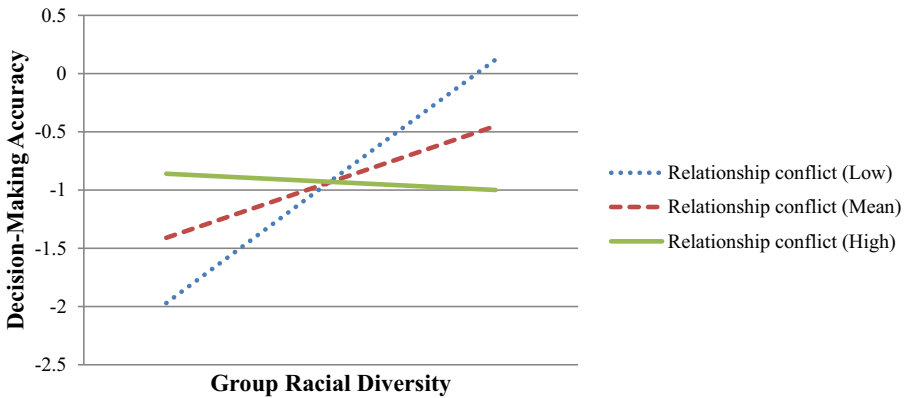


Figure 1. Group racial diversity × relationship conflict interaction. Decision-making accuracy is the dependent variable. Relationship conflict is low: 4.00; mean: 1.86; and high: -.28.

In exploring this interaction effect further, simple slopes were calculated at different levels of relationship conflict (i.e., -1 SD, mean, +1 SD). As is detailed in Figure 1, racial diversity in groups had a strong positive effect on decision accuracy, but only when relationship conflict in groups was low ($B = 4.00$, $SE = 1.56$, $p = .01$). Conversely, the impact of racial diversity in groups on decision accuracy was virtually nonexistent when relationship conflict was high ($B = -.28$, $SE = 1.38$, $p = .84$). Consequently, these results indicate that the expected positive effect of racial diversity in groups is suppressed when relationship conflict manifests between group members.^{5,6}

Discussion

These results indicate that racial diversity in groups is beneficial when such groups are tasked with making complex decisions, but only under conditions in which relationship conflict is kept at a minimum. Stated differently, the presumed benefit of working on decision-based tasks is only beneficial when members of a different race can engage in discussion conflict without taking it personally (see also de Wit et al., 2012). Presumably, this occurred because groups that experienced relational tension were more likely to disengage from the discussion in the interest of terminating the experiment (see also Jehn,

⁵When this interaction effect is investigated using the alternate procedures described by Ai and Norton (2003) and Norton, Wang, and Ai (2004), results and conclusions are similar.

⁶These results are virtually identical when a measure of task conflict is included as a control variable.

1995). Alternatively, groups that were able to curb relationship conflict experienced the benefits of approaching the problem from different perspectives without disengaging from the conversation, which presumably facilitated the dissemination of unique information (see also Larson, Foster-Fishman, & Franz, 1998). Although theoretically intuitive, scholars are encouraged to confirm these theoretical conjectures with empirical data. Scholars are also encouraged to investigate the extent to which diversity in groups amplifies in/out-group biases when relationship conflict between members is present. Ultimately, such work will continue to expand upon and clarify the current claim that both optimistic and pessimistic views should be synthesized when attempting to explain the disparate effects of diversity in groups (Guillaume et al., 2017; van Knippenberg & Mell, 2016).

Future research

Regarding future research, there are numerous avenues worth exploration. Future replications, for instance, would benefit from investigating the moderating effects of other similar variables that are also presumed to suppress the positive effects of racial diversity in groups (see Guillaume et al., 2017). Group faultlines, for instance, represent group-level divisions that arise due to members' demographic dissimilarities, which are expected to attenuate group-level performance (Lau & Murnighan, 1998). Thus, although this study considered the important moderating impact of relationship conflict, diversity scholars would also benefit from continued exploration of other moderators that also represent social division, bias, or poor interpersonal relations.

In addition, determining precisely *how* some groups attenuate relationship conflict despite engaging in discussion conflict would shed additional light on the reported interaction term. Currently, some research suggests that trust (Simons & Peterson, 2000; see also Peters & Karren, 2009) and open discussion norms (Jehn & Mannix, 2001) are pivotal to facilitating beneficial conflict patterns in groups (see also De Wit, Greer, & Jehn, 2012; Guillaume et al., 2017). That is, it is possible that some heterogeneous groups preclude relationship conflict by creating open discussion climates that are both trusting and welcoming of others' opinions. Alternatively, it is possible that members' specific personality characteristics facilitate the extent to which group members are able to engage in productive teamwork behaviors (Bell, 2007; Driskell, Goodwin, Salas, & O'Shea, 2006). Indeed, because these results suggest that some heterogeneous groups experience relationship conflict whereas others do not, it will be important to understand the additional moderating conditions that either attenuate or amplify the diversity–relationship conflict association. Moreover, it will be important to investigate whether other variables mediate the effect of the diversity/relationship conflict nonadditive effect. That is, scholars would benefit from investigating the extent to which members in heterogeneous groups with strong levels of relationship conflict are less likely to share unique information, which would thus attenuate performance (see van Knippenberg & Mell, 2016). Such studies would allow scholars to make concrete recommendations to managers and those in leadership positions attempting to negotiate the dynamics of diversity within the workplace or other social contexts.

Finally, future replications will also benefit from assessing whether these results replicate when considering different types of tasks and contexts. For example, although this study made use of a decision-making task, there are other tasks in which the positive effect of racial diversity may also be suppressed or perhaps reversed when relationship conflict is introduced in groups (e.g., decision-making vs. competitive tasks; for additional task types, see McGrath, 1984; Steiner, 1972). The utilization of different tasks would inform whether the effect of racial diversity is produced consistently across contexts, as well as whether relationship conflict plays a moderating role in some contexts by not others. Moreover, different types of diversity in groups and their respective interactions may also be considered (e.g., gender diversity; see Guillaume et al., 2017; Mannix & Neale, 2005; Roberson, 2019), as racial diversity was the only kind of diversity considered in this study.

Limitations

It is important to note that the sample size used in this study was small (group $N = 79$), which is an unfortunate, albeit seemingly unavoidable, characteristic of group-level research (Maas & Hox, 2005; Manata, Miller, DeAngelis, & Paik, 2016). Small sample sizes are problematic because they attenuate statistical power and increase standard errors (Hunter & Schmidt, 2004); furthermore, lower statistical power is problematic because the probability of incorrectly accepting a false conclusion increases (Cohen et al., 2013; Hunter, 1997). Hence, future studies would benefit from replicating these results using larger group-level sample sizes.

As a second limitation, it is important to note that levels of maximum diversity and relationship conflict were restricted. This is problematic because restriction in range attenuates effect sizes (Hunter & Schmidt, 2004). Indeed, this may explain why this experiment was unable to establish the predicted negative effect between racial diversity and decision accuracy when relationship conflict was high. Ensuring additional variance in this factor may allow researchers to establish the negative effect of relationship conflict in groups more firmly. Nevertheless, the severity of this general problem is perhaps mitigated by the fact that reported results did not diverge drastically from what has been reported elsewhere, that is, the a priori logic was largely substantiated. Specifically, when tasked with an information sharing task, diverse groups outperformed homogeneous groups (Mannix & Neale, 2005). Moreover, although the effect of relationship conflict on group performance was small and nonsubstantial, this is in line with previous meta-analyses (see Manata, 2016). Nevertheless, future research endeavors would benefit from addressing this limitation by attempting to ensure additional variation in both relationship conflict and other group diversity variables. Likewise, such empirical investigations would benefit from considering the effect of specific diversity compositions on group-related outcomes. For example, in addition to increasing the amount of diversity in one's sample, emphasis could be placed on assessing whether specific group-level combinations of racial ethnicity produce unique results (e.g., two Caucasians and one Asian, vs. two Asians and one Caucasian, vs. two Asians and one Latino). This argument is based on recent research regarding racial positioning, which suggests that different minorities are stereotyped differently (e.g., Latinos are generally stereotyped as being both inferior and foreign, whereas Asian Americans are generally stereotyped as being foreign but not inferior; see Zou & Cheryan, 2017). If it is the case that such dynamics are at play during group interaction, then it is reasonable to suggest that such stereotypes influence group members' identities and thus decision-making dynamics. As such, in addition to ensuring adequate levels of diversity, it is also recommended that such group composition considerations are modeled in future studies. Although, note that such dynamics are expected to become increasingly complicated as group size increases and different diversity characteristics are considered and incorporated into such designs.

As these limitations and additional theoretical considerations are addressed, it is believed that future research endeavors of this nature will contribute greatly to what is known currently about how racial diversity operates in groups. Indeed, a continued synthesis of both optimistic and pessimistic perspectives that are invoked commonly in the group diversity corpus would be of decided value to diversity scholars' understanding of how diversity operates in both groups and organizations alike (Guillaume et al., 2017; Mannix & Neale, 2005; Roberson, 2019; van Dijk et al., 2012; van Knippenberg & Mell, 2016).

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