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Social Psychological Bulletin

Race-Ethnicity and the Big-Fish-Little-Pond Effect in the United States

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Supplementary Materials: Data, Materials [see Index of Supplementary Materials]

Abstract

According to research on the big-fish-little-pond effect, students with a high rank in a low rank school have more favorable self-evaluations than students with a low rank in a high rank school. We examined whether this effect extends to a racial-ethnic context. Black and White adults in the United States completed a social perception test and were told that they had a high rank in a racial group that performed poorly or a low rank in a racial group that performed well. Black participants identified more strongly with their racial group than White participants. However, the big-fish-little-pond effect occurred and was similar in size across Black and White participants. These results suggest that the big-fish-little-pond effect generalizes to a racial-ethnic context and replicates across majority and minority group members.

Keywords

Highlights

- Research on the big-fish-little-pond effect (BFLPE) demonstrates that students with a high rank in a low rank school have more favorable self-evaluations than students with a low rank in a high rank school.
- We examined whether the BFLPE generalizes to a racial-ethnic context in the United States.
- Results yielded a statistically significant and large BFLPE for both White and Black participants.
- These results suggest that the BFLPE generalizes to a racial-ethnic context and replicates across majority and minority group members.

Self-evaluations of ability (i.e., evaluations of one's skill level or competence, typically in important domains) are adaptive constructs that predict emotional well-being, motivation, and performance (Marsh & Seaton, 2015). Research on the *big-fish-little-pond effect* (BFLPE) demonstrates that students with a high rank in a low rank school have more favorable self-evaluations than students with a low rank in a high rank school (Marsh & Parker, 1984; Marsh et al., 2019). Most studies on the BFLPE were done in school contexts, using relatively small social groups (e.g., classes, schools), and thus it remains unknown whether it obtains in other contexts involving large demographic groups (e.g., age, race, gender). Given that people often compare themselves to racial group members and compare their racial group to other groups (Hogg, 2016; Smith et al., 2012; Steele, 1997), we examined whether the BFLPE occurs in a racial-ethnic context. Specifically, the current study explores whether people with a high rank in a racial group that performs poorly have more favorable self-evaluations than people with a low rank in a racial group that performs well.

According to social comparison theory, comparisons with others are a primary contributor to self-evaluations (Festinger, 1954). Extensive research indicates that social comparisons impact self-evaluations and performance-related affect, which consists of positive emotions such as pride and happiness as well as negative emotions such as discouragement and distress (Gerber et al., 2018; Zell & Strickhouser, 2020). Social comparisons occur both within and between groups. Specifically, *intragroup comparisons* occur when people compare themselves to ingroup members (e.g., members of their school, workplace, or family). Additionally, *intergroup comparisons* occur when people compare the performance of an ingroup to relevant outgroups. People with a high rank in social groups have more favorable self-evaluations than people with a low rank; similarly, people in high rank groups have more favorable self-evaluations than people in low rank groups (Pekrun et al., 2019; Zell & Alicke, 2009).

The BFLPE involves both intragroup and intergroup social comparisons. Students compare themselves with others at their school and compare their school with other

schools. Research indicates that the BFLPE generalizes across age and cultural groups (Fang et al., 2018). For example, the BFLPE has been found in over 65 countries across the world, including Australia, Chile, France, Hong Kong, Mexico, Serbia, and Tunisia (Marsh et al., 2019; Nagengast & Marsh, 2012). Further, experiments suggest that the BFLPE occurs because intragroup comparisons with classmates have a stronger impact on self-evaluations and performance-related affect than intergroup comparisons (Zell & Alicke, 2010; Zell & Lesick, 2021). Although most studies on the BFLPE have examined academic groups, one study suggests that it extends to minimal groups (Alicke et al., 2010).

The BFLPE is robust across racial-ethnic groups when examined in a school context (Fang et al., 2018; Marsh et al., 2019). However, previous work suggests that intergroup comparisons may have a stronger impact in a racial-ethnic context. According to social identity theory, people quickly and commonly identify themselves with social groups and base self-evaluations on the standing of important group identities, such as their race-ethnicity (Ellemers & Haslam, 2012; Hogg, 2016). Moreover, theory and research on stereotype threat indicate that activating a stereotype where one's racial-ethnic group is inferior to other groups negatively impacts emotions and performance, especially when the performance task is important (Spencer et al., 2016; Steele, 1997). These theories imply that intergroup comparisons may be more powerful in a racial-ethnic context compared to a school context, thus leading to a reduced BFLPE on self-evaluations and performance-related affect.

Further, the magnitude of the BFLPE may vary across racial groups when examined in a racial-ethnic context. African Americans identify more strongly with their racial group than European Americans (Nelson et al., 2013; Strickhouser et al., 2019) and those who identify with their group feel deprivation when that group is disadvantaged (Richeson & Sommers, 2016). Consistent with this argument, research indicates that native-born Muslims report more relative deprivation than foreign-born Muslims, likely because native-born Muslims identify more strongly with their group than foreign-born Muslims (Obaidi et al., 2019). People who strongly identify with their group are also impacted more by group successes and failures than those who do not (see Dovidio & Jones, 2019). Therefore, whereas European Americans may focus primarily on their individual performance and neglect their racial group's performance during self-evaluation (strong BFLPE), African Americans may focus on both their individual performance and their racial group's performance (no BFLPE).

Consistent with this argument, research indicates that the BFLPE is reduced when people strongly identify with their group. In one study, participants rated how strongly they identified with seven groups (e.g., age, race, gender), completed a social perception test, and received feedback tailored to the group that they valued most or least (McFarland & Buehler, 1995, Study 4). Relatively few participants (14%) received feedback about their racial group. A significant BFLPE was obtained among participants who

received feedback about their least valued group, however, a nonsignificant BFLPE was obtained among participants who received feedback about their most valued group. Further, other research suggests that people who strongly identify with their school evidence a weaker BFLPE (Gardner et al., 2002, Study 2; McFarland & Buehler, 1995, Study 2–3).

In sum, the vast majority of studies on the BFLPE have examined relatively small social groups by setting the reference group as the participant's school or classroom. Further, although one study examined the BFLPE in a racial-ethnic context, it did so only among a small percentage of participants (14%; McFarland & Buehler, 1995, Study 4). The United States is becoming increasingly diverse in terms of race-ethnicity (U.S. Census Bureau, 2019) and people often make social comparisons involving racial groups (Hogg, 2016; Smith et al., 2012; Steele, 1997). Therefore, we expanded upon previous work by testing whether the BFLPE occurs within a large demographic group (i.e., race-ethnicity). Whereas prior experiments gave participants feedback indicating their rank relative to others at their school and their school's rank relative to other schools (Zell & Alicke, 2009), we gave participants feedback indicating their rank relative to others in their racial group and their racial group's rank relative to another racial group. Since European Americans do not identify as strongly with their racial group, we anticipated that they would show a relatively large BFLPE. However, since African Americans identify more strongly with their racial group, we anticipated that they would show a relatively small BFLPE.

Our pre-registered hypothesis was that the BFLPE would "differ between African Americans and European Americans in a racial-ethnic context." Although not stated explicitly, our specific prediction was that European Americans would evidence a relatively large BFLPE, but that African Americans would evidence a relatively small BFLPE. This prediction was derived from prior work suggesting that that BFLPE is very large among people who weakly identify with their group but very small among people who strongly identify with their group (Gardner et al., 2002, Study 2; McFarland & Buehler, 1995, Study 2–3). This difference likely occurs because people who weakly identify with their group neglect group rank information during self-evaluation and instead focus on their rank within the group, which accentuates the BFLPE (Zell & Alicke, 2010, 2020). Conversely, people who strongly identify with their group likely use both intragroup and intergroup comparisons during self-evaluations, which weakens the BFLPE.

Method

This study was approved by the IRB at the authors' university. All participants provided informed consent. Below, we report how we determined the sample size and all data exclusions, manipulations, and measures. Materials (including exact wording of all scale

items), data, supplemental analyses, and a pre-registration are publicly available on OSF (see Supplementary Materials).

Participants

Participants were recruited via Prolific and were paid $0.85. Participation was restricted to those who met the following criteria: Black/African American or White/European American, female or male, born in the United States, resided in the United States, native English speakers, 18–39 years old, study approval rate above 80%, and elected to participate in deception studies. Previous experiments on the BFLPE examined young adults in the US (e.g., Gardner et al., 2002; McFarland & Buehler, 1995; Zell & Alicke, 2009). For consistency, we also focused on this population in the present study.

We collected data until we obtained at least 210 participants who passed all manipulation, attention, and suspicion checks. According to G*Power (Faul et al., 2007), the planned minimum sample size of 210 participants provided 95% power to detect a medium effect for the anticipated interaction ($f = 0.25$, $\alpha = 0.05$, numerator $df = 1$, number of groups = 4, ANOVA: fixed effects, special, main effects, and interactions). Prior research examining moderation of the BFLPE in experimental settings obtained medium to large interaction effects (i.e., a very large effect in one group versus a very small effect in another group; Gardner et al., 2002; McFarland & Buehler, 1995). A total of 308 participants were obtained. As in previous studies (e.g., Alicke et al., 2010; Zell & Lesick, 2021), and as specified in our preregistration, we excluded 95 participants for failing the individual manipulation check, group manipulation check, attention check, suspicion check, or for failing to complete all study measures (see the Supplementary Materials). Thus, the final sample included 213 participants, of which 106 were Black (54 female, $M_{age} = 28.18$) and 107 were White (52 female, $M_{age} = 29.75$).

Procedures

Participants were told that the purpose of the study was to measure their social perceptiveness and to examine whether European Americans and African Americans differ on this dimension. By explicitly stating that we were interested in racial differences in verbal performance, participants' racial group membership should have been activated (Spencer et al., 2016; Steele, 1997). We had participants complete a social perception test since this was the performance domain examined in prior research suggesting that the BFLPE is reduced among people who strongly identify with their group (Gardner et al., 2002; McFarland & Buehler, 1995, Study 2–3). Further, this prior research suggested that social perception tests are sufficiently ambiguous to promote the believability of false performance feedback (see also, Alicke et al., 2010).

Next, participants saw 40 neutral-expression faces (20 women and 20 men; 10 White, 10 Black, 10 Hispanic, and 10 Asian; Ma et al., 2015) and judged the personality, religion,

and sexual orientation of each target (i.e., extrovert or introvert, religious or not religious, straight or gay/lesbian). Participants rated each face on all three dimensions. We presented faces from multiple gender and racial-ethnic groups to bolster the perceived validity of the test, since people who have strong social perception skills should be able to accurately perceive people from a variety of groups. Further, we had participants judge the faces along multiple dimensions (i.e., personality, religion, and sexual orientation) to bolster the perceived validity of the test. All selected faces were pilot tested for attractiveness using a 1 (*not at all*) to 7 (*extremely*) scale, and overall, the faces were moderately attractive (*M* = 3.24; *SD* = 0.81; see Ma et al., 2015).

After completing the social perception test, participants were randomly assigned to one of two feedback conditions. The feedback focused on participants' overall performance on the social perception test. Participants in the BFLP (big fish little pond) condition were told that they ranked "much better" than members of their racial group and that their racial group performed "much worse" than the opposing racial group. For example, White participants in this condition were told that they ranked much better than other European Americans and that European Americans performed much worse than African Americans. Participants in the LFBP (little fish big pond) condition were told that they ranked "much worse" than members of their racial group and that their racial group performed "much better" than the opposing racial group. For example, Black participants in this condition were told that they ranked much worse than other African Americans and that African Americans performed much better than European Americans. The order of the two feedback types was fixed such that intragroup comparison information was provided first.

After the feedback, participants completed measures of self-evaluations and performance-related affect (Zell & Lesick, 2021; Zell & Strickhouser, 2020). Specifically, participants completed a 3-item measure of self-evaluations (α = 0.86), where they evaluated their performance, ability, and task-specific ability using 1 (*very poorly/bad*) to 7 (*very well/good*) scales. Participants also completed a 6-item measure of performance-related affect (α = 0.86), where they indicated how satisfied, proud, sad, discouraged, happy, and distressed they felt about their performance using 1 (*not at all*) to 7 (*extremely*) scales. Negative affect items were reverse scored before aggregation, so that higher values indicate more favorable affect. Next, participants completed a 4-item measure of racial identity relevance (α = 0.80; Crocker et al., 1999), where they indicated how strongly they identified with their racial group using a 1 (*strongly disagree*) to 7 (*strongly agree*) scale. We measured racial identity relevance after participants were provided feedback to explore whether the feedback impacted this measure. For exploratory purposes, participants completed measures of group-evaluations and group status (for more details, see the Supplementary Materials).

Lastly, participants completed an attention check, which asked them to click the third option on a 7-point scale, and two manipulation checks, which asked them whether

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they performed much better or worse than other same-race participants and whether their racial group performed much better or worse than the other group. Additionally, participants were asked whether they had any suspicions about the study and completed demographic questions. Participants who voiced suspicion about the performance feedback were excluded (e.g., "Yes. I believe the rankings were made up").

Participant Exclusions

Of the 95 participants who were excluded, 41 were in the BFLP condition and 54 were in the LFBP condition. Additionally, 30 were African American, 49 were European American, and 16 did not indicate their race-ethnicity (i.e., failed to complete all study measures).

Results

Results were similar when excluded participants were retained (see the Supplementary Materials). Unlike the primary analysis reported below, we found a significant main effect of race on self-evaluations when all participants were retained, $F(1, 288) = 4.41$, $p = .037$, $\eta_p^2 = 0.02$. Nonetheless, the effect size for race was very similar regardless of whether participants were retained or not. There were no significant effects of gender in this research. We used an alpha level of .05 (two-tailed) for all tests.

Self-Evaluations

A 2 (participant race: African American, European American) X 2 (feedback condition: BFLP, LFBP) ANOVA was conducted on self-evaluations (see Figure 1 for descriptive statistics). The analysis yielded a significant main effect of feedback condition, $F(1, 209)$ = 90.18, $p < .001$, $\eta_p^2 = 0.30$, such that self-evaluations were more positive in the BFLP conditions ($M = 4.83$, $SD = 1.24$) than the LFBP conditions ($M = 3.08$, $SD = 1.44$). However, there was a nonsignificant main effect of race, $F(1, 209) = 1.33$, $p = .250$, $\eta_p^2 = 0.01$, and a nonsignificant interaction of race and feedback condition, $F(1, 209) = 1.71$, $p = .193$, $\eta_p^2 = 0.01$. Planned comparisons examined the effect of feedback condition within each racial group. Consistent with predictions, there was a significant and very large BFLPE for European Americans, $t(209) = 5.81$, $p < .001$, $d = 1.19$, 95% CI [0.78, 1.60]. In contrast with predictions, there was also a significant and very large BFLPE for African Americans, $t(209) = 7.62$, $p < .001$, $d = 1.40$, 95% CI [0.97, 1.83]. Readers should note that our pre-registration stipulated planned comparisons only in the event of a significant interaction. Nonetheless, given the strong theoretical basis for our planned comparisons, and because we believe they help describe the pattern of results, we elected to conduct them despite the non-significant interaction.

Figure 1

Mean Self-Evaluations by Race and Feedback Condition
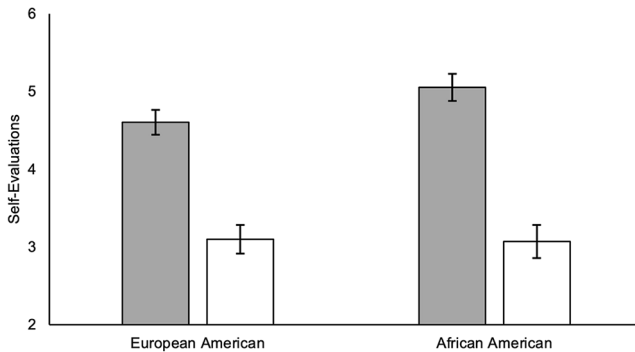
Note. Error bars are ± 1 *SEM*.

Performance-Related Affect

Parallel results were obtained for performance-related affect (see Figure 2 for descriptive statistics). Specifically, the main effect of feedback condition was significant, $F(1, 209) = 33.102$, $p < .001$, $\eta_p^2 = 0.14$. However, the main effect of race and interaction of race and feedback condition were both nonsignificant, $F(1, 209) = 0.83$, $p = .362$, $\eta_p^2 < 0.01$ and $F(1, 209) = 2.99$, $p = .085$, $\eta_p^2 = 0.01$. There was a significant and medium BFLPE for European Americans, $t(209) = 2.85$, $p = .005$, $d = 0.58$, 95% CI [0.19, 0.96], as well as a significant and large BFLPE for African Americans, $t(209) = 5.28$, $p < .001$, $d = 0.98$, 95% CI [0.58, 1.38].

Figure 2

Mean Performance-Related Affect by Race and Feedback Condition
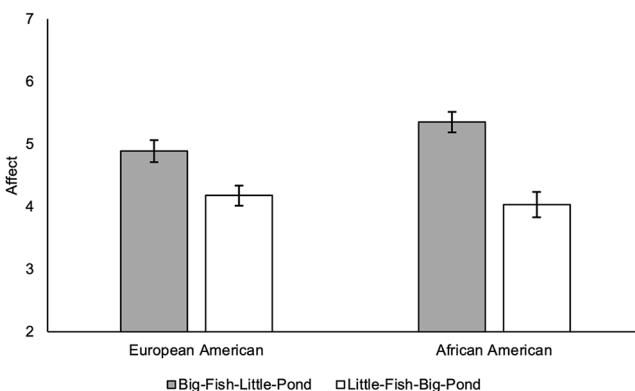
Note. Error bars are ± 1 *SEM*.

Racial Identity Relevance

A significant main effect of race was obtained, $F(1, 209) = 41.016$, $p < .001$, $\eta_p^2 = 0.16$, such that Black participants identified more with their race ($M = 5.95$, $SD = 1.17$) than White participants ($M = 4.89$, $SD = 1.24$). A nonsignificant main effect of feedback condition and a nonsignificant interaction was found, $F(1, 209) = 2.28$, $p = .132$, $\eta_p^2 = 0.01$ and $F(1, 209) = 0.18$, $p = .676$, $\eta_p^2 < 0.01$.

Exploratory Analyses

We conducted exploratory analyses to examine whether racial identity relevance moderated any of the observed effects. Along these lines, we conducted a mixed model on self-evaluations, which entered participant race and feedback condition as categorical variables and racial identity relevance as a continuous variable. There were no significant two-way or three-way interactions involving racial identity relevance (ps > .060, see the Supplementary Materials), which suggests that racial identity was not a significant moderator. A parallel analysis conducted on performance-related affect also found no significant two-way or three-way interactions involving racial identity (ps > .109, see the Supplementary Materials analyses). These analyses suggest that racial identity was not a significant moderator of any effect tested in this research. Readers should note that our pre-registration specified a moderated mediation analysis involving racial identity. We later came to appreciate that this analysis was not relevant to the theoretical questions tested here, and thus we did not conduct it.

Discussion

Research on the BFLPE demonstrates that students with a high rank in a low rank school have more favorable self-evaluations and affect than students with a low rank in a high rank school (Pekrun et al., 2019; Zell & Alicke, 2009). However, the vast majority of studies on the BFLPE have set the reference group as either the student's school or classroom (Marsh et al., 2007, 2014). Given the increasing racial diversity of the United States (U.S. Census Bureau, 2019) and the fact that people often make social comparisons involving race-ethnicity (Hogg, 2016; Smith et al., 2012; Steele, 1997), we examined whether the BFLPE generalizes to a racial-ethnic context. That is, rather than providing participants with feedback indicating their rank relative to others at their school and their school's rank relative to other schools, we gave participants feedback indicating their rank relative to others in their racial group and their racial group's rank relative to another racial group. Informed by research suggesting that the BFLPE is reduced when people strongly identify with their group (Gardner et al., 2002; McFarland & Buehler, 1995), we anticipated that White participants would show a significant BFLPE,

but that Black participants would show a nonsignificant BFLPE. However, results yielded a statistically significant and large BFLPE for both White and Black participants.

The present study contributes to the BFLPE literature in three ways. First, it expands upon previous work by testing the limits of the BFLPE in a racial-ethnic context. Most of the BFLPE literature examines relatively small social groups (e.g., classes, schools). The current research examines the BFLPE in the context of a large demographic group (i.e., race-ethnicity). To our knowledge, only two prior studies examined the BFLPE outside of an academic context, setting the reference group as either a minimal group (Alicke et al., 2010) or a select social group rated as important or unimportant by the participant (McFarland & Buehler, 1995, Study 4). The present study found consistent evidence for the BFLPE in a racial-ethnic context, which suggests that the effect may extend beyond an academic context to other contexts.

Second, the present study replicated the BFLPE in both a racial majority and minority group, and thus provides preliminary evidence suggesting that the effect may generalize across groups when examined in a racial-ethnic context. Although prior research found that the BFLPE is nonsignificant among people who strongly identify with their group (Gardner et al., 2002; McFarland & Buehler, 1995), the present research indicated that the BFLPE was evident regardless of group identification. Thus, the present findings support the proposed universality of the BFLPE. Whereas prior research obtained a significant BFLPE across age, ability, socioeconomic status, and culture in an academic context (Fang et al., 2018; Marsh & Seaton, 2015), the present research obtained a significant BFLPE across White and Black adults in a racial-ethnic context. Strong claims about universality cannot be made from the present study given that it was limited to a single country (USA) and performance task (social perceptiveness), but the present findings are consistent with the notion that the BFLPE generalizes across different racial groups.

Third, the present study provides robust causal evidence for the BFLPE. Most research on the BFLPE has utilized correlational designs (Fang et al., 2018; Marsh & Seaton, 2015) and prior experiments were limited by very low statistical power, with samples ranging from 10 to 30 participants per condition (Gardner et al., 2002; McFarland & Buehler, 1995; Zell & Alicke, 2009). Therefore, the present study is among the first to provide causal evidence for the BFLPE and does so in an experimental design that was higher-powered than previous work in this literature.

There were a couple of limitations to the present study. First, intragroup comparison information was provided before intergroup comparison information across participants. Nonetheless, previous research found a significant and large BFLPE even when intragroup and intergroup comparison feedback were counterbalanced (Zell & Alicke, 2009; Zell & Lesick, 2021). Second, the intergroup comparison feedback was limited to two racial groups. Previous research indicates that the BFLPE occurs both when feedback compares the participant's group to one other group (Alicke et al., 2010; McFarland & Buehler, 1995, Study 2) or several groups (Gardner et al., 2002). Nonetheless, future re-

search should examine whether the BFLPE occurs in a racial-ethnic context that involves a larger set of groups.

Additionally, future studies should directly replicate prior research suggesting that the BFLPE is reduced when people strongly identify with their group (Gardner et al., 2002; McFarland & Buehler, 1995, Study 2–4). It is possible that due to low statistical power, prior research obtained a false positive. Directly replicating prior research with larger samples will help clarify whether group identification moderates the BFLPE. We powered our study to detect a medium-sized interaction effect. Thus, future research may want to replicate our study with a larger sample to explore whether smaller moderation effects are detectable. Furthermore, because the current study examined White and Black young adults on Prolific, research on other populations is needed to test the generalizability of the present findings (e.g., other racial-ethnic groups, other age groups, those born in countries other than the US, those who are not native English speakers).

Another potential limitation of the present study was the use of false performance feedback. Although we used a suspicion probe and excluded 20 participants who indicated that they were suspicious about the feedback (see the Supplementary Materials), it is possible that other participants were also suspicious but chose not to communicate this. Testing the BFLPE in an experimental design requires the use of false performance feedback, thus raising the possibility of suspicion. Nonetheless, readers should note that many field studies provide support for the BFLPE in designs that do not require deception (Fang et al., 2018; Marsh & Seaton, 2015). A related issue was that the feedback was somewhat ambiguous, only noting that participants ranked "much better" or "much worse" than others in their group, and similarly, that their racial group ranked "much better" or "much worse" than the opposing group. We used this approach to promote comprehension of the feedback, but future studies may consider using numeric scores to enhance feedback believability (e.g., percentile ranks), while noting that this requires a larger number of groups.

Future research should also examine whether race-ethnicity moderates the BFLPE in other performance domains. Previous work has used social perception tests to examine the BFLPE (e.g., Alicke et al., 2010; Gardner et al., 2002; McFarland & Buehler, 1995) and has found that social perception is perceived as an important skill. We found that race did not significantly moderate the BFLPE following a social perception test. However, it remains possible that race moderates the BFLPE in other domains, such as academic domains in which African Americans are negatively stereotyped (e.g., verbal ability; Steele, 1997), or in impactful societal domains such as wealth and education. Historically, White people in the United States who had relatively low wealth or education likely still had a higher status than members of oppressed racial minority groups, which may have boosted their self-concepts via affiliation with the "superior" group. Thus, future research is needed to understand how the BFLPE is impacted by race in other domains.

Finally, our exploratory analyses found that racial identity was not a significant moderator of the BFLPE. However, due to low statistical power, these exploratory analyses should be interpreted with caution. Moreover, supplemental analyses found that there was a (non-significant) trend for the BFLPE to be somewhat larger among participants who strongly versus weakly identified with their racial group (i.e., African Americans). Although we proposed that *intergroup comparisons* would be accentuated among people who strongly identified with their group (reduced BFLPE), it is instead possible that *intragroup comparisons* are accentuated in these conditions (enhanced BFLPE). In other words, people who strongly identify with their group may be especially sensitive to their standing within the group, thus enhancing the BFLPE. Research in higher-powered designs is needed to further explore this possibility.

In closing, the present study examined the BFLPE in a racial-ethnic context. Results indicated that the BFLPE extends to a racial-ethnic context for both European Americans and African Americans following a social perception test. Future research is needed to examine whether the BFLPE occurs in other racial-ethnic groups and whether it extends to other contexts in which people strongly identify with social groups, such as gender, religion, and nationality. Thus, although much research has documented the BFLPE in academic contexts, additional research is needed to identify the contexts in which the BFLPE occurs, the extent to which it varies across majority and minority groups, and whether it is moderated by group identification.

Supplementary Materials

Supplementary materials include the following: Data, data codebook, pre-registration, supplemental analyses, study materials, and analysis syntax (for access see Index of Supplementary Materials below).

Index of Supplementary Materials

Lesick, T. L., & Zell, E. (2020). *Supplementary materials to "Race-ethnicity and the big-fish-little-pond effect in the United States"* [Data, codebook, preregistration, supplemental analyses and materials]. OSF. https://osf.io/d57ha/

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