Gender Gaps in Children's Interest in Leadership Roles

by

Andrea C. Vial[a] & Andrei Cimpian[b]

[a]Department of Psychology, New York University Abu Dhabi, United Arab Emirates

[b]Department of Psychology, New York University, New York, NY 10003, USA

Corresponding author:

Andrea C. Vial
P.O. Box 903
New York, NY 10276-0903
USA
email: andrea.vial@nyu.edu
+1 347-281-0617

Acknowledgments
This work was funded by Mattel Inc.'s Dream Gap Postdoctoral Fellowship in Child Development granted to Vial and by U.S. National Science Foundation grant BCS-1733897 awarded to Cimpian. We are very grateful to the members of the Cognitive Development Lab at New York University for their assistance with data collection, particularly Madison Charlton, Juhi Dalal, Ingrid Fiedman, Claire O'Leary, Alessia Seroff, and Molly Tallberg.

Abstract

Understanding how children think of leadership may provide important insights on the roots of adult gender gaps in leadership ambition. In three studies, we evaluated children's anticipation of social support for leaders as well as their own motivation to pursue leadership roles, paying close attention to the way that gender may influence children's responses. In Study 1, girls expected lower social support for leaders than boys across a variety of contexts involving group activities. In Study 2, girls appeared to be less interested than boys in a novel leader role in the context of a group game, and this difference was especially large among White children younger than 8 years old. In Study 3, we tested whether interest in a leader role could be increased by framing the role in a communal and gender-neutral manner. Results revealed that, regardless of their gender, children were more interested in the leader role in the communal leader condition (vs. control) and anticipated stronger social support and cooperation from others if they were to be the leader, as well as higher self-efficacy as leaders.

Keywords: developmental psychology, gender, leadership

Gender Gaps in Children's Interest in Leadership Roles

Throughout the world, women continue to be sorely underrepresented in leadership roles (e.g., World Economic Forum, 2020). Research indicates that these gender gaps are due at least in part to stereotypes that equate leadership with traditionally-masculine attributes such as assertiveness (Koenig et al., 2011). The kinds of behaviors that are seen as required for leaders tend to be valued in men but contradict the traditional feminine role, which prescribes women to be kind and considerate rather than assertive (Prentice & Carranza, 2002). This incongruity can lead to bias against female leaders (Eagly & Karau, 2002), who are often disliked by others (Brescoll et al., 2018; Heilman & Okimoto, 2007), penalized for exercising authority (Sinclair & Kunda, 2000), and undermined by subordinates (Koch, 2005; Vial et al., 2016). The prospect of social disapproval can be a powerful disincentive (e.g., Tomasello, 2014); indeed, women tend to anticipate a lack of support from others if they were to behave assertively, which often deters them from doing so (Brescoll, 2011; Moss-Racusin et al., 2010). Accordingly, a gender gap has been documented such that women are overall less interested than men in a wide range of leadership roles (Fisk & Overton, 2019; Fox & Lawless, 2014; Goodwin et al., 2020).

In the current investigation, we adopt a developmental perspective seeking to examine the origins of gender differences in leadership aspirations among young children. Understanding how children think of leadership could provide some important insights on the roots of adult gender gaps in leadership ambition (Caleo & Halim, 2021; Heck et al., 2021; Diekman et al., 2021; Martin & Fabes, 2021). If young girls in particular anticipate a social cost or a lack of support from others when occupying a leadership role, then they may be relatively uninterested in pursuing leadership-related activities from an early age, avoiding opportunities to lead throughout the course of development. Over time, this avoidance process could result in a gender

gap in leadership ambition among adults. Similar developmental processes have been shown to be influential in explaining the maintenance of gender gaps in interest and participation in science careers (e.g., Boston & Cimpian, 2018), but a deep examination of children's interest in leadership is lacking (Heck et al., 2021). Whereas considerable attention has been devoted to understanding how adults think about leadership—including, in the case of women, the perceived social costs of behaving in leader-like ways—the developmental origins of these attitudes remain underexamined (Caleo & Halim, 2021).

The studies in the current investigation aim to fill this gap by evaluating children's motivation to pursue leadership-related tasks, activities, and roles, paying close attention to the way that gender may factor into children's attitudes about leadership. We focus in particular on the anticipation of social support and resistance from others, which have been shown to be key in understanding adult gender gaps in leadership ambition (Brescoll, 2011; Moss-Racusin et al., 2010). Whereas "leadership" may encompass a variety of dimensions and behaviors, we were interested in a leader's ability to organize an activity by giving others orders (Gülgöz & Gelman, 2017), a high-agency aspect of leadership that overlaps particularly strongly with stereotypically male traits (Koenig et al., 2011) and is especially at odds with prescribed female behavior (Prentice & Carranza, 2002). For the same reason, whereas leadership roles can be conferred in a variety of ways (e.g., by democratic vote), we focused on children's attitudes toward leader roles that are claimed assertively because this is the kind of context in which we would expect gender norms and stereotypes to be most influential.

In Study 1, we examined whether children, particularly girls, anticipate low social support for other children who claim a leader role in the context of a group activity. In addition to gender differences in the expectation of social support for leaders, we were also interested in

the possibility that children might be similarly biased against female leaders as adults (Eagly & Karau, 2002; Eagly & Heilman, 2016); Thus, in Study 1, we also examined whether children's anticipation of social support may vary as a function of leader gender.

In Study 2, in addition to testing children's anticipation of social support for a girl and a boy in a leader role, we also examined children's own interest in a leader role and their anticipation of social support and cooperation from other children if they were the leader. We also assessed children's sense of self-confidence as leaders as well as their perception of girls' and boys' efficacy as leaders. Self-confidence in one's abilities may depend in part on expectations of support from others—in the context of leadership, in particular, a leaders' capacity to lead effectively requires cooperation from followers (Tyler, 2002). Thus, we investigated whether gender differences emerged in children's self-confidence as a leader and whether boys and girls attributed different levels of leader efficacy to their own-gender group.

Finally, in Study 3, we examined whether children's (particularly girls') interest in a leader role may increase when the communal aspects of the role are emphasized and when the role is presented as gender neutral rather than typically male-occupied. Consistent with the view that women's low interest in leadership stems from a mismatch between prescribed female behavior and a stereotypical view of leadership as overly assertive and male-typed, highlighting the communal aspects of leadership (e.g., as representing a service that is helpful to others) can shape adult women's interests in pursuing leadership roles such as running for political office (Pate & Fox, 2018; Schneider et al., 2016; Schneider & Bos, 2019). Thus, it is possible that framing a leader role in more communal terms might similarly encourage girls to take on this role. Additionally, presenting a leader role as typically occupied by men/boys may signal to girls that the domain of leadership is not "for them", whereas exposing children to female leaders may

counter such perception, increasing girls' interest in a leader role. We tested these possibilities in Study 3 with the goal of understanding how leadership may be framed in a way that may encourage girls to pursue leader-like activities and roles from a young age.

As a whole, our results indicate that gender gaps in leadership interest may start quite early, that girls' anticipation of social costs is could play a role, and that highlighting the communal aspects of leadership may increase interest in leadership roles for all children.

Study 1

The goal of Study 1 was to investigate whether girls and boys might expect different levels of social support from peers for children who act as leaders, and whether they might anticipate different levels of social support from peers as a function of leader gender.

Method

Participants

Participants were 99 children in New York City between the ages of 5 and 10 years (50 boys, 49 girls; M = 7.90 years, SD = 1.72 years, range = 5.04 – 10.81 years), who participated in the study at their schools (n = 37), in children's museums (n = 52), or in our laboratory (n = 10). The sample size was determined a priori based on several considerations: ensuring balance by leader gender condition (as described in the procedure) and by participant gender and age, and counterbalancing a number of variables described in the procedure, including story order, group size, and gender composition. Children were 34.3% White, 15.2% Hispanic or Latinx, 11.1% Asian or Pacific Islander, 3.0% Black, 18.2% Multiracial or Multiethnic, and 6.1% Other; 12.1% of parents did not report their child's race or ethnicity. The median household income was $140,000; 64.6% of parents did not report their household income.

Procedures and Measures

We presented all participants with four stories (within-subjects) in different settings (at the beach, at school, at summer camp, or at the park) in counterbalanced order. Each story described a group of children seeking to engage in an activity together (e.g., build a sandcastle) and a child within the group who claimed a leader role in the group activity (i.e., the "leader"). The gender of the leader varied between participants: For half of them, the leader in each of the four stories was male, whereas for the other half, the leader in each of the four stories was female. The full script for each story is included in Appendix A. Images of each of the leaders[1] as well as all other visuals and verbatim text for each story is reported in the Online Supplement. Each story featured a different group of children, which varied within-subjects along two dimensions (a) size (2 vs. 10 children in addition to the leader) and (b) gender composition (same gender as the leader vs. mixed gender). These factors did not influence the results.

For each story, we asked participants four questions to gauge their expectations for how children in the group would feel about the leader (i.e., anticipation of social support): (a) "*Would they think he/she is nice, or not?*", (b) "*Would they think he/she is bossy, or not?*", (c) "*Would they want to be friends with him/her, or not?*", and (d) "*Would they like him/her more, or less?*" Participants responded in two steps: An initial yes/no response (e.g., "*Yes, they would think she's nice*"), followed by a two-point scale (e.g., "*Would they think she is sort of nice? Or really nice?*"). Responses to each of the four questions ranged from 1 (e.g., *really not nice*) to 4 (e.g., *really nice*). After reverse-scoring the "bossy" item, participant answers to the four questions were averaged to form a measure of anticipated social support for leaders ($\alpha = .85$).

[1] We pre-tested these materials by asking an independent sample of adults ($n = 52$) on Amazon Mechanical Turk (MTurk) to evaluate a picture of each of the leaders and rate them on perceived age, intelligence, warmth, physical attractiveness. These judgements were unrelated to participants' responses to the four stories in the study.

After the four stories,[2] participants were told that "it is okay for any child to step up to be in charge," were offered a small prize for their time (e.g., a sticker), and were dismissed.

Open Science Practices

The raw data and analytic syntax for the three studies are openly available on the Open science Framework: https://osf.io/h684j/?view_only=7ff5c24433304657a1d516394463af2f.

Analytic Strategy

To examine whether participant gender and leader gender influenced responses to the four vignettes, we first conducted a mixed effects linear regression on anticipated social support with leader gender condition (0 = male leaders, 1 = female leaders), participant gender (0 = boys, 1 = girls), and their interaction as predictors (all mean-centered), including random intercepts for participant and story setting. Then, to examine whether other participant characteristics (i.e., besides gender) moderated the aforementioned effects, we tested the same mixed effects model three more times with the addition of (a) participant age, (b) participant race or ethnicity (0 = children of color, 1 = White children) (n = 87), and (c) participant socioeconomic status (SES). We computed SES by combining household income and parental education after standardizing these variables (n = 86). In all three models, participant characteristics were entered as predictors (mean-centered) and interacted with participant gender and leader gender condition. Given the 2 × 2 experimental design and the size of our dataset, we could not reliably examine the moderating effect of more than one participant characteristic at a time (i.e., in addition to

[2] For exploratory purposes, we asked a subset of children (n = 33) to indicate why they believed the four leaders in the stories said they would be in charge (open-ended). The experimenter then provided the participant with three potential reasons (i.e., they were trying to help the group; they are mean; they have fun telling others what to do; all "yes/no"). Finally, we gauged children's interest in taking on a leadership role by asking whether they would like to be in charge like the children in the stories ("yes/no"). They were then asked to explain their reasoning for wanting or not wanting to be in charge. There were no significant effects of participant gender or leader gender condition on any of the variables.

participant gender, which was included in all models). In Studies 1-3, all analyses were conducted in Stata 16 (StataCorp, 2019). The mixed-effects models were computed with the *mixed* command; marginal tests that followed up on these models were computed with the *margins* command.

Results

The basic mixed effects model revealed a significant main effect of participant gender, such that girls anticipated lower social support (M = 1.78, SE = 0.10) than boys (M = 2.07, SE = 0.10), b = –0.29, SE = 0.12, p = .018 (see Figure 1). The main effect of leader gender condition was not significant, b = 0.05, SE = 0.12, p = .66. The two-way participant gender × leader gender interaction was not significant, b = 0.47, SE = 0.25, p = .058.

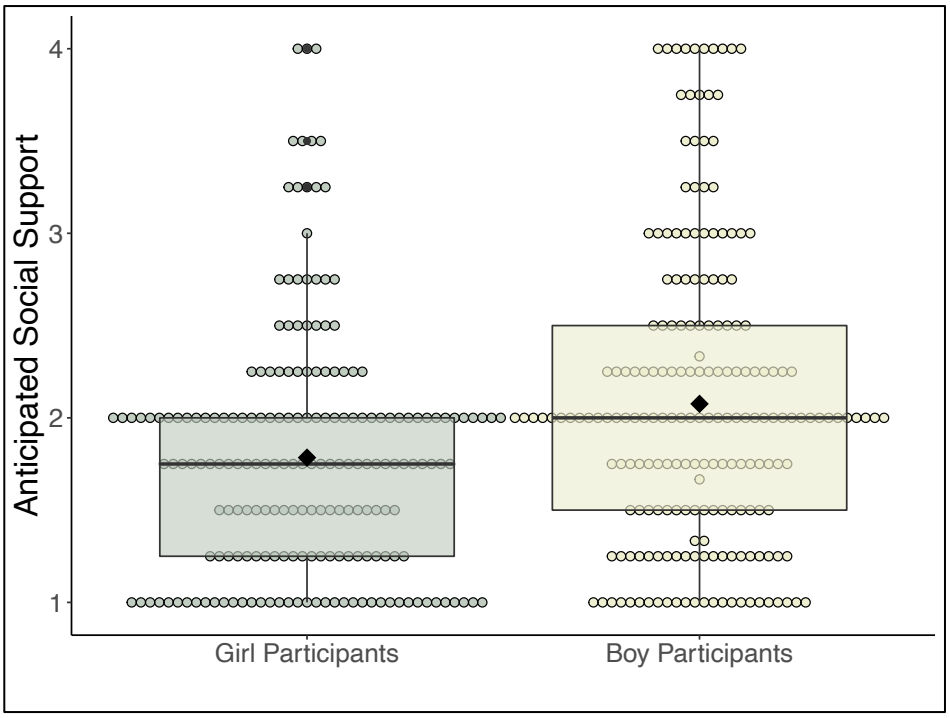

Fig. 1. Anticipated social support for girl participants and boy participants in Study 1. Each dot represents an individual participant's response; a box plot is overlaid on the individual data points. Within each box plot, the solid line in the middle represents the median, and the diamond represents the mean.

Other participant characteristics

Results revealed no main effects on anticipated social support of participant age, $b = -0.02$, $SE = 0.04$, $p = .50$; participant race or ethnicity, $b = 0.26$, $SE = 0.14$, $p = .061$; or participant SES, $b = -0.04$, $SE = 0.08$, $p = .59$. There were also no significant interactions between these variables and participant gender or leader gender condition (full results in the Online Supplement). In all models, the main effect of participant gender remained significant, with girls reporting lower anticipated social support than boys ($-0.33 < b < -0.31$). The significance of the two-way participant gender × leader gender interaction depended on the model, age: $p = .057$; race or ethnicity: $p = .051$; SES: $p = .062$.

Discussion

The results of Study 1 suggest that girls expect leaders to receive less social support from peers compared to boys. This difference was more marked for male leaders rather than female leaders, but appeared consistently across analyses. Girls overall expected lower social support for leaders than boys regardless of context (i.e., across stories and group size or gender composition), and we found this participant gender difference regardless of age and above and beyond other participant characteristics (race/ethnicity and socioeconomic status). If girls expect leaders to be relatively unsupported by their peers (compared to boys), then they might be more reluctant than boys to act as leaders. We examined this possibility in Study 2.

Study 2

The primary goal of Study 2 was to examine whether girls and boys might be differentially interested in taking on a leader role in the context of a group activity. We also sought to explore children's expectations of social support and cooperation from other children if they were to occupy a leader role, their sense of self-efficacy as leaders, and their expectations for leaders of their own gender group (i.e., how much social support and cooperation they

expected own-gender leaders to elicit from other children, and the perceived leadership efficacy of their gender group).

Method

Participants

The sample included 149 children in New York City between the ages of 5 and 10 years (77 boys, 72 girls; M = 7.99 years, SD = 1.65 years, range = 4.86 – 10.96 years), who took part in the study at their schools (n = 37), in children's museums (n = 94), or in our laboratory (n = 18). The sample size was determined a priori to ensure balance by participant gender and age, as well as counterbalance the order of the question blocks (as described in the procedure). Children were 31.54% White, 14.8% Hispanic or Latinx, 8.72% Asian or Pacific Islander, 6.04% Black, 11.4% Multiracial or Multiethnic, and 6.04% Other; 21.48% of parents did not report their child's race or ethnicity. The median household income was $185,000; 61.7% of parents did not report their household income. As explained in the procedure, we excluded any participants who answered attention check questions incorrectly (n = 4).

Procedures

We presented participants with a novel game (the "Zarky Game") and told them that they would have an opportunity to play this game with other children of their age in the future. We described the game as one in which children play together and, although no leader is necessary, one player may decide to be in charge. We specified that having a leader was not mandatory so that children would understand that claiming the leader role was entirely optional. We reasoned that claiming the leader role in a context in which a leader is not necessary would constitute a highly assertive behavior. Participants learned that, if one of the players wanted to be in charge of the game, this child would stand up and declare, "I will be the Zarky Boss;" this child would

then be in charge of the game, make decisions, and tell the other players what to do. The full script used to describe the game is included in Appendix B.

After the experimenter had finished describing the game, participants were reminded that they would play the game in the future with other kids their own age, and were then asked a series of questions to measure their interest in the leader role. Then, we asked participants a series of questions about what they believed would happen if they were the game leader: anticipation of (a) social support and (b) cooperation from other children in the game and (c) sense of self-efficacy as game leader. The three sets of questions were presented in three separate blocks; the order of presentation of the three blocks, and of the questions within each block, was counterbalanced.

After these measures, we told participants about a boy and a girl who had been leaders in the game over the previous week. To do this, we employed two leaders from Study 1. We selected the boy and girl leaders from Study 1 who had been rated as most similar in terms of perceived age, intelligence, warmth, physical attractiveness by an independent sample of adults on MTurk (n = 52). Images of these two characters as well as all other visuals and verbatim text for Study 2 can be seen in the Online Supplement. We asked participants the same set of questions but in relation to the two characters: anticipation of (a) social support and (b) cooperation from other children in the game and (c) perceived efficacy as game leader. These questions were always asked as a comparison between the two characters, as explained below; the character whose gender matched the participant's gender was always mentioned first. Responses were coded such that higher numbers indicated more positive expectations for the character whose gender matched the participant's.

At the end of the session, participants answered two attention check questions described below to confirm their understanding of the game leader role; we excluded any participants who answered both of these questions incorrectly ($n = 4$). Finally, participants were told that "it is okay for any child to step up to be in charge," were offered a small prize for their time (e.g., a sticker), and were dismissed.

Measures

Interest in the leader role. First, participants were asked, "*Would you like to be the Zarky Boss? Or would you not like to be the Zarky Boss?*" (Yes/No). After the participant responded, the experimenter followed up by asking whether they would "*sort of*" or "*really*" like/not like to be the game leader. These responses were coded on a 4-point scale (1 = *really not like to*, 2 = *sort of not like to*, 3 = *sort of like to*, and 4 = *really like to*). Next, participants were asked to explain the reasoning behind their decision to be or not be the Zarky Boss (open-ended), and to choose between being a follower (coded as 0) and being the Zarky Boss (coded as 1). We standardized participant responses on the first and last questions ($r = .70$, $p < .001$) and averaged them into a single measure; higher numbers indicate more interest in being the game leader.

Anticipated social support. We asked participants three questions to gauge their anticipation of social support from the other children in the game if they were the game leader. The questions began with the stem, "*After you said you would be in charge of the game, would the other children…*": (a) "*like you more? Or like you less?*"; (b) "*want to be friends with you? Or not want to be friends with you?*"; and (c) "*think you are nice? Yes? Or no?*" Responses were coded on a 4-point scale (e.g., 1 = *like me a lot less*, 4 = *like me a lot more*), and were averaged into a single measure of anticipated social support ($\alpha = .70$).

Anticipated cooperation. Three questions gauged participants' anticipation that the other children would cooperate with them if they were the game leader. The questions began with the stem, "*After you said you would be in charge of the game, would the other children…*": (a) "*want to play Zarky more? Or want to play less?*"; (b) "*do what you say? Or not do what you say?*"; and (c) "*pay attention to you? Or not pay attention to you?*" Responses were coded on a 4-point scale (e.g., 1 = *really not do what I say*, 4 = *really do what I say*), and were averaged into a single measure of anticipated cooperation (α = .75).

Self-efficacy as leader. Three questions evaluated participants' sense of self-efficacy as a leader: (a) "*How good do you think you'd be as the Zarky Boss? Would you be good at it? Or would you not be good at it?*"; (b) "*How good do you think you'd be at telling other kids what to do? Would you be good at it? Or would you not be good at it?*"; and (c) "*How well would the other children do at Zarky with you as Zarky boss? Would they do well? Or not so well?*" Responses were coded on a 4-point scale (e.g., 1 = *really not well*, 4 = *really well)*, and were averaged into a single measure of self-efficacy as game leader (α = .63).

Anticipated social support for own-gender leader. We asked participants the same three questions on anticipated social support but worded in reference to the two leader characters (e.g., "*Who would the other children in the game like more? Would they like the girl Zarky Boss more? Or would they like the boy Zarky Boss more?*"). Responses were coded on a 4-point scale, with higher scores indicating more positive expectations for own-gender (vs. other-gender) leaders (e.g., 1 = *like other-gender leader a lot more*, 4 = *like own-gender leader a lot more*), and were averaged into a measure of anticipated social support for own-gender leaders (α = .82).

Anticipated cooperation with own-gender leader. We asked participants the same three questions on anticipated cooperation from other children in the game but worded in

reference to the two leader characters (e.g., "*Would the other children in the game want to play Zarky more with the girl as Zarky Boss? Or would they want to play Zarky more with the boy as Zarky Boss?"*). Responses were coded on a 4-point scale, with higher scores indicating more positive expectations for own-gender (vs. other-gender) leaders (e.g., 1 = *want to play a lot more with other-gender leader*, 4 = *want to play a lot more with own-gender leader*), and we averaged them into a measure of anticipated cooperation with own-gender leaders (α = .78).

Perceived efficacy of own-gender leader. Participants answered three questions similar to the questions measuring their own self-efficacy as leaders but worded in reference to the two leader characters (e.g., "*Who would be better as Zarky Boss? Would the girl be better as Zarky Boss? Or would the boy be better as Zarky Boss?"*). Responses were coded on a 4-point scale, with higher scores indicating more positive expectations for own-gender (vs. other-gender) leaders (e.g., 1 = *other-gender leader would be a lot better*, 4 = *own-gender leader would be a lot better*), and were averaged into a single measure (α = .73).

Attention checks. The experimenter asked participants two questions to gauge attentiveness and recall of what the leader role entailed: (a) *"Can you tell me, what does the Zarky Boss do in the Zarky Game?"* (open-ended), and (b) *"Does the Zarky Boss tell the other kids what to do? Or does the Zarky Boss do what the other kids say?"*

Analytic Strategy

For each of the dependent variables, we first conducted a linear regression model with participant gender (0 = boys, 1 = girls) as predictor. Then, for each dependent variable, we examined whether participant age and race or ethnicity moderated this relationship by including both variables as predictors in the model (all mean-centered), as well as all interactions. As in

Study 1, we then examined whether the results varied when including participant socioeconomic status as a covariate in these analyses.

Results

Interest in Leader Role

The regression analysis revealed a numerically lower interest in girls (M = –0.11, SE = 0.12) compared to boys (M = 0.15, SE = 0.12), b = –0.31, SE = 0.17, p = .070. This relationship was qualified by a significant three-way interaction between participant gender, age, and race or ethnicity, b = 0.51, SE = 0.21, p = .018. We examined this interaction by testing the two-way participant gender × age interaction separately for children of color (n = 70) and White children (n = 47). For children of color, this analysis revealed a numerically (but not significantly) lower interest in girls (M = –0.12, SE = 0.16) compared to boys (M = 0.19, SE = 0.15), b = –0.31, SE = 0.22, p = .17. The age coefficient and the interaction with participant gender were not significant for children of color, ps > .14. For White children, there was a significant two-way participant gender × age interaction, b = 0.45, SE = 0.15, p = .006. As illustrated in Figure 2, White girls were significantly less interested in the leader role than White boys among 5-year-old children, b = –1.64, SE = 0.56, p = .005; 6-year-old children, b = –1.19, SE = 0.43, p = .008; and 7-year-old children, b = –0.74, SE = 0.32, p = .024. Among older White children (8-10 years) the gender difference was not significant, ps > .11.

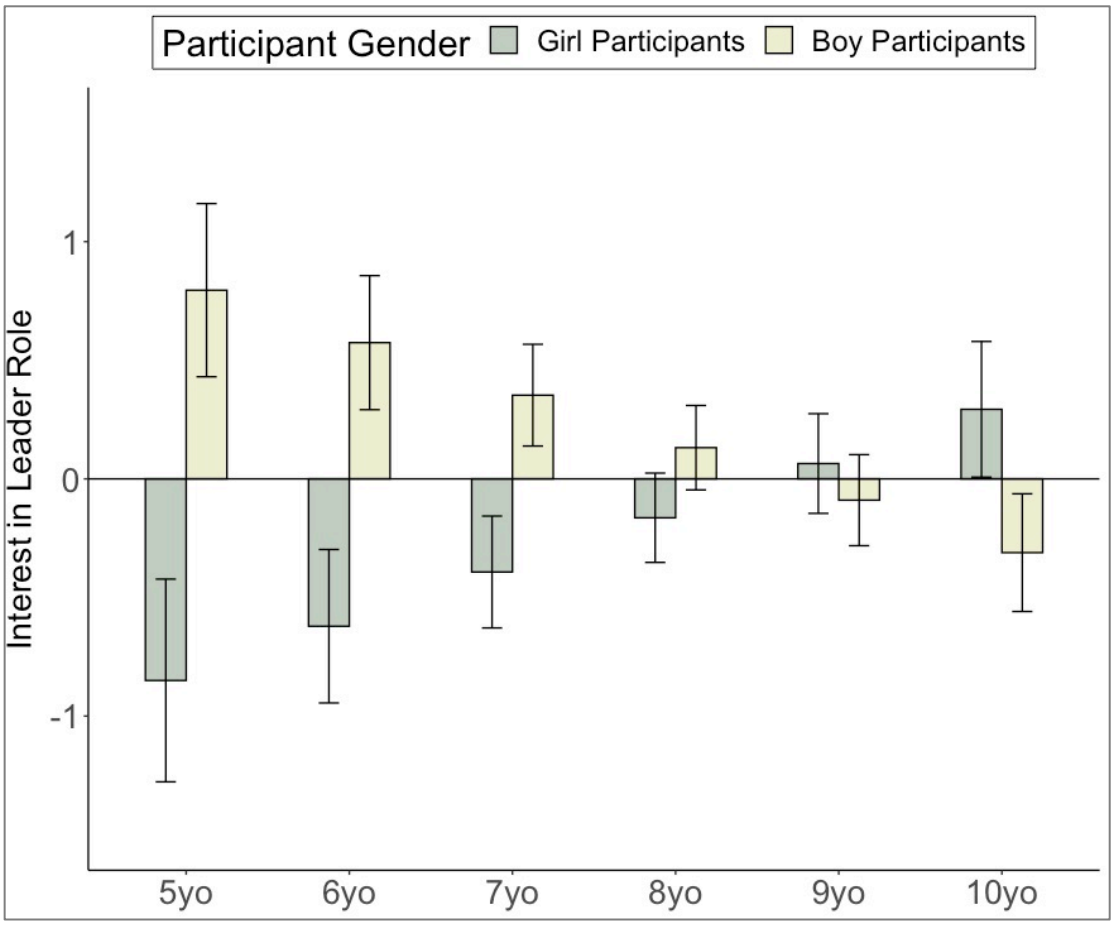

Fig. 2. Interest in leader role as a function of participant age and gender among White children in Study 2. Error bars represent ± 1 *SE*.

Expectations for Self in Leader Role

Anticipated social support. The basic model revealed no significant gender difference in anticipated social support from other children in the game, $b = 0.04$, $SE = 0.11$, $p = .70$. There was a significant association with age, such that anticipated social support decreased with age, $b = –0.08$, $SE = 0.04$, $p = .031$. However, this relationship was not significant when participant socioeconomic status was included in the model as a covariate, $b = –0.08$, $SE = 0.04$, $p = .065$. No other coefficients were significant, $ps > .21$.

Anticipated cooperation. Results revealed no significant gender difference in anticipated cooperation from other children in the game, $b = –0.04$, $SE = 0.12$, $p = .70$. White

children anticipated slightly more cooperation if they were the leader (M = 3.27, SE = 0.11) compared to children of color (M = 3.02, SE = 0.09), b = 0.26, SE = 0.14, p = .066. This relationship became more robust when accounting for participant socioeconomic status, b = 0.32, SE = 0.14, p = .031. No other coefficients were significant, ps > .097.

Self-efficacy as leader. The basic model revealed no significant gender difference in sense of self-efficacy as game leader, b = 0.02, SE = 0.12, p = .89. Overall, self-efficacy appeared to decrease somewhat with age, although this relationship was not significant, b = –0.07, SE = 0.04, p = .072. No other coefficients were significant, ps > .11.

Expectations for Own-Gender Leaders

Anticipated social support for own-gender leaders. The regression analysis revealed a higher expectation of social support for own-gender leaders in girls (M = 3.07, SE = 0.09) compared to boys (M = 2.74, SE= 0.09), b = 0.33, SE = 0.13, p = .012. This relationship was weakened when participant age, race/ethnicity, and socioeconomic status were also in the model, b = 0.28, SE = 0.14, p = .051. Overall, anticipated social support for own-gender leaders decreased with age, b = –0.12, SE = 0.04, p = .012, and was lower for White children (M = 2.77, SE = 0.11) compared to children of color (M = 3.06, SE = 0.09), b = –0.29, SE = 0.15, p = .046. No other coefficients were significant, ps > .21.

Anticipated cooperation with own-gender leaders. The regression analysis revealed a significant interaction between participant gender and age on expectations of cooperation for own-gender leaders, b = –0.18, SE = 0.08, p = .024. Girls expected more cooperation than boys for own-gender leaders among 5-year-old children, b = 0.58, SE = 0.26, p = .031, and among 6-year-old children, b = 0.40, SE = 0.20, p = .047. Among older children (7-10 years) the gender difference was not significant, ps > .12. No other coefficients were significant, ps > .14.

Perceived efficacy of own-gender leader. Results revealed only a significant relationship with participant age, such that older children perceived lower efficacy in own-gender leaders, $b = –0.13$, $SE = 0.05$, $p = .006$. No other coefficients were significant, ps $> .10$.

Discussion

The results of Study 2 suggest that girls might sometimes be less interested than boys in leader roles, especially among White children younger than 8 years old. For children of color, the gender gap in interest in the leader role was less pronounced and did not seem to vary with age. We found little evidence in the current study for gender gaps in the anticipation of social support or cooperation from peers when children imagine themselves in a leader role (contrary to Study 1, in which girls' expectations of social support for *other children* in leader roles were lower than boys' expectations). Interestingly, in Study 2, girls appeared to expect stronger support and cooperation than boys for leaders of their own gender group, especially among younger children. We also found little evidence for a gender gap in sense of self-efficacy as a leader, or for perceived efficacy of own-gender leaders, which suggests that any gender differences in interest in leader roles at this young age is not necessarily due to girls' lack of confidence in their leadership abilities.

Study 3

The goal of Study 3 was to evaluate whether children's interest in a leader role (particularly girls') would increase when the leader role was more closely aligned with communality and when boys and girls were equally represented among typical leaders. To do this, we replicated the procedure from Study 2 with two important changes. First, we manipulated the leader role such that, in one condition, it was described as a communal role that was helpful to others (versus a control leader role condition that was identical to Study 2).

Second, we manipulated the perception of a gender norm around leadership such that, in one condition, an equal number of past leaders were boys and girls (versus a condition in which the majority of past leaders were boys). We expected children—girls, in particular—to be more interested in the leader role and to expect more support and cooperation from others when the leader role was described as communal (vs. control) and when the gender norm for past leaders was neutral (vs. male-typed).

Similar to Study 2, in Study 3 we also sought to explore children's expectations for leaders of their own gender group (i.e., how much social support and cooperation they expected own-gender leaders to elicit from other children, and the perceived leadership efficacy of their gender group). We did this with a similar methodology as in Study 1, in which children were presented with stories that featured either a boy leader or a girl leader. Children indicated how effective they expected each of them to be as leaders and how much they expected other children in the story to support and cooperate with each of them.

Method

Participants

Participants were 244 children in New York City between the ages of 5 and 10 years (121 boys, 123 girls; M = 8.01 years, SD = 1.64 years, range = 5.00 – 11.02 years), and they took part in the study at their schools (n = 72), in children's museums (n = 46), in our laboratory (n = 21), or online via Zoom (n = 105). The sample size was determined a priori based on several considerations: ensuring balance by participant gender and age, and counterbalancing a number of variables described in the procedure, including the order of the two parts of the study as well as the order of the question blocks. Children were 52.05% White, 14.75% Hispanic or Latinx, 8.20% Asian or Pacific Islander, 6.15% Black, 9.43% Multiracial or Multiethnic, and 0.82%

Other; 8.61% of parents did not report their child's race or ethnicity. The median household income was $150,000; 54.1% of parents did not report this information. As explained in the procedure, a number of participants (n = 26) answered attention check questions incorrectly and were not included in the analytic sample.

Procedures

The study had two parts, a "stories" part and a "game" part, which were administered in counterbalanced order. The "stories" part involved two stories that were modified from Study 1, and the "game" part involved a novel game that was modified from Study 2. The full study took approximately 15 minutes to complete.

In the "stories" part of the study, we presented participants with two short stories from Study 1, but with an expanded battery of questions matching those from Study 2. Both stories described a mixed-gender group of 10 children at the beach looking to build a sandcastle and a child within the group who claimed a leader role in this activity (i.e., the "leader"), either a boy ("Alex") or a girl ("Sara") (within-subjects). As in Study 2, for this part of Study 3 we selected the boy and girl leaders from Study 1 who had been rated as most similar in terms of perceived age, intelligence, warmth, and physical attractiveness by an independent sample of adults on MTurk (n = 52). Children first heard the story featuring the leader that matched their own gender. After each of the two stories, we asked participants three blocks of questions about the leader to assess anticipation of (a) social support and (b) cooperation from other children in the story and (c) perceived efficacy as leader. We counterbalanced the order of the three blocks of questions, and the questions within each block.

In the "game" portion of the study, we presented participants with the same novel game from Study 2 and told them that they would have an opportunity to play this game with other

children of their age in the future. The script was identical to Study 2, but we modified the description of the game in two important ways to manipulate (a) the perception of the leader role as either agentic or communal, and (b) the perception of the leadership gender norm as either male-typed or gender neutral. The full script used to describe the game is available in Appendix C. After the experimenter had finished describing the game, participants were reminded that they would play the game in the future with other kids their own age, and were then asked the same exact questions from Study 2 to measure their interest in the leader role and what they believed would happen if they were the game leader: anticipation of (a) social support and (b) cooperation from other children in the game and (c) sense of self-efficacy as game leader. The three sets of questions were presented in three separate blocks; the order of presentation of the three blocks, and of the questions within each block, was counterbalanced. At the end of the "game" part of the study, participants answered two attention check questions described below to confirm their understanding of the two key manipulations; we excluded participants who answered any of these questions incorrectly (n = 15). Finally, participants answered the same two attention check questions from Study 2 to confirm their understanding of the game leader role; we excluded any participants who answered both of these questions incorrectly (n = 11).

At the end of the session, participants were told that "it is okay for any child to step up to be in charge," were offered a small prize for their time (e.g., a sticker), and were dismissed.

Measures

Anticipated social support for leaders. In the "story" part of the study, two questions assessed participants' anticipation of social support for the boy and girl leaders (four questions total), which were similar to the questions about own-gender leaders in Study 2, but aimed at each leader individually (e.g., *"After [Alex/Sara] said that [he/she] would be in charge of*

building the sandcastle, would the other children like [him/her] more? Or would they like [him/her] less?"). Responses were coded on a 4-point scale (e.g., 1 = *like [him/her] a lot less,* 4 = *like [him/her] a lot more*) and averaged into a measure of anticipated social support (r = .68, p <.001).

Anticipated cooperation with leaders. Two questions gauged participants' anticipation of cooperation from the other children with the boy and girl leaders in the "story" part of the study (four questions total). These questions were similar to those about own-gender leaders in Study 2, but referred to each leader individually (e.g., *"After [Alex/Sara] said that [he/she] would be in charge of building the sandcastle, would the other children do what [Alex/Sara] says? Or would they not do what [he/she] says?").* Responses were coded on a 4-point scale (e.g., 1 = *really not do what [he/she] says,* 4 = *really do what [he/she] says*) and averaged into a single measure of anticipated cooperation (r = .74, p <.001).

Perceived leader efficacy. We used two questions to evaluate participants' expectations of leader efficacy for the boy and the girl leaders (four questions total) in the "story" part of the study, which were similar to the questions about own-gender leaders in Study 2, but referred to each leader individually (e.g., "*How good do you think [Alex/Sara] would be at being in charge of building the sandcastle? Would [he/she] be good at it? Or not good at it?"*). Responses were coded on a 4-point scale (e.g., 1 = *really not good*, 4 = *really good*) and averaged into a single measure of perceived efficacy (r = .57, p <.001).

Leader role manipulation. In the "game" part of the study, in order to manipulate perceptions of the leader role as either more agentic or more communal (between-subjects), half of the participants were randomly assigned to a "communal leader" condition in which the experimenter emphasized that it is very helpful to have to have a leader in the game. We

reasoned that claiming the leader role in a context in which it is explicitly helpful to do so would represent a communal behavior (while also being assertive). The other half of participants were assigned to a "control" condition in which the experimenter emphasized that the game did not need a leader, but sometimes a player wants to be in charge (i.e., identical to the leader role in Study 2). To help participants encode this information about the leader role, the experimenter asked them a memory check question (Communal Leader condition: *"Is it helpful to have a Zarky Boss? Or is it not helpful?"*; Control condition: "*Does the Zarky game need a boss? or does it not need a boss?"*). Regardless of whether the participant responded correctly, the experimenter briefly restated the correct answer before continuing.

Gender norm manipulation. In the "game" part of the study, we manipulated the perception of the gender norm of the leader role as either male-typed or gender neutral (between-subjects) by showing participants a list of children who had ostensibly played the game the week before and had claimed the leader role. The list contained twelve children including their names, ages, and a picture, with their gender clearly marked by the colors blue (for boys) and pink (for girls). Half of the participants were randomly assigned to a "male norm" condition in which nine (75%) of the game leaders were boys and three (25%) were girls; the other half of participants were assigned to a "gender neutral norm" condition in which the leaders were evenly split by gender (six boys and six girls). To help participants encode this information about the gender norm of the leader role, the experimenter asked them to count the number of boys and girls (e.g., *"How many boys are there? Could you count them for me?"*). If the participant answered incorrectly, the experimenter counted aloud to arrive at the correct response. After this, the experimenter asked participants a memory check question: *"Of the kids who were Zarky Boss last week, were they mostly boys? Or were they mostly girls? Or about the same number of boys*

and girls?". If the participant answered incorrectly, the experimenter displayed the list again and helped the participant to count and arrive to the correct answer before proceeding.

Interest in the leader role. Participants were asked the same three questions as in Study 2 to gauge interest in the leader role in the "game" part of the study: Whether they would like to be the game leader and how much (from 1 = *really not like to*, to 4 = *really like to*); why or why not (open-ended); and whether they would prefer to be the game leader (coded as 1) or a follower (coded as 0). We standardized participant responses to the first and last question (r = .72, $p < .001$) and averaged them into a composite; higher numbers indicate more interest in being the game leader.

Anticipated social support. The same three questions from Study 2 were used to gauge participants' anticipation of social support from the other children in the "game" part of the study if they were the game leader. Responses were coded on a 4-point scale (e.g., 1 = *like me a lot less*, 4 = *like me a lot more*), $\alpha = .74$.

Anticipated cooperation. In the "game" part of the study, to assess children's anticipation that the other children would cooperate with them if they were the game leader, we used the same three questions from Study 2. Responses ranged from 1 (e.g., *really not do what I say*) to 4 (e.g., *really do what I say)*, $\alpha = .69$.

Self-efficacy as leader. We employed the same three questions as in Study 2 to evaluate participants' sense of self-efficacy as a leader in the "game" part of the study. Responses were coded on a 4-point scale (e.g., 1 = *really not good as leader*, 4 = *really good as leader)*, $\alpha = .79$.

Manipulation and attention checks. At the end of the "game" part of the study, the experimenter asked participants four questions to gauge attentiveness and recall of the key manipulations. To assess recall of the gender norm manipulation, participants were asked

whether the leaders of the previous week had been mostly boys, mostly girls, or about the same number of boys and girls. To assess recall of the leader role manipulation, we asked participants whether or not the game needed a leader (control leader condition) or whether or not it was helpful to have a leader (communal leader condition). We excluded participants who answered incorrectly to either of these two questions. Lastly, to gauge recall about what the leader role entailed (i.e., telling other kids what to do), the we asked the same two attention check questions from Study 2; we excluded participants who answered both questions incorrectly.

Analytic Strategy

To examine whether participant gender and leader gender influenced responses in the "stories" part of the study, we followed the same analytic strategy as in Study 1, and conducted a mixed effects linear regression on each of the dependent variables (anticipated social support for leaders, anticipated cooperation with leaders, and perceived leader efficacy) with participant gender (0 = boys, 1 = girls) and leader gender condition (0 = male leader, 1 = female leader), and their interaction as predictors (all mean-centered), including a random intercept for participant (i.e., given that each participant rated both the male leader and the female leader).

To test whether the two manipulations in the "game" part of the study had an effect on participant responses, we conducted a linear regression model for each dependent variable with participant gender (0 = boys, 1 = girls), leader role condition (0 = control, 1 = communal leader), and gender norm condition (0 = male norm, 1 = gender-neutral norm) as predictors (all mean-centered), as well as all interactions.

As in Studies 1 and 2, in order to examine whether other participant characteristics (i.e., besides gender) moderated the aforementioned effects, we tested the same mixed effects models with the addition of (a) participant age, (b) participant race or ethnicity (0 = children of color, 1 =

White children) (n = 223), and (c) participant socioeconomic status (SES). We computed SES by standardizing and combining household income and parental education (n = 217).

Results

Expectations for Female Leaders and Male Leaders

Anticipated social support for leaders. In the "stories" part of the study, for anticipated social support for leaders, the basic mixed effects model revealed no significant main effect of participant gender, b = –0.06, SE = 0.10, p = .57 or leader gender condition, b = 0.03, SE = 0.04, p = .43. However, there was a significant two-way participant gender × leader gender interaction, b = –0.28, SE = 0.09, p = .002. To examine this interaction (Figure 3), we tested the effect of participant gender separately for the male leader and the female leader. For the female leader, there was a marginal effect of participant gender, such that girl participants anticipated lower social support (M = 2.54, SE = 0.08) than boy participants (M = 2.74, SE = 0.08), b = –0.20, SE = 0.11, p = .075. For the male leader, the effect of participant gender was not significant, b = 0.08, SE = 0.11, p = .47. Overall, girl participants anticipated similar levels of social support for the female leader and the male leader, b = –0.10, SE = 0.06, p = .10, whereas boy participants anticipated stronger social support for the female leader (M = 2.74, SE = 0.08) than for the male leader (M = 2.57, SE = 0.08), b = 0.17, SE = .06, p = .006.

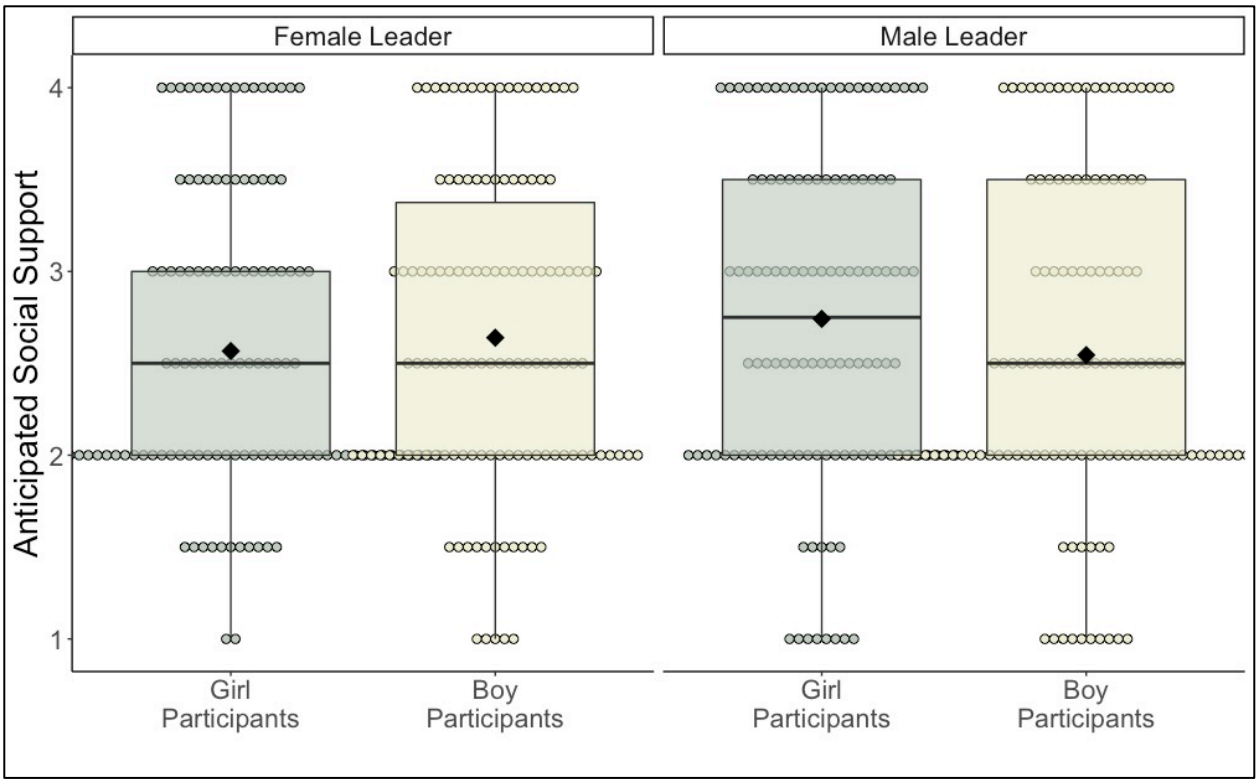

Fig. 3. Anticipated social support for girl participants and boy participants in the female leader condition (left) and male leader condition (right) in Study 3. Each dot represents an individual participant's response; a box plot is overlaid on the individual data points. Within each box plot, the solid line in the middle represents the median, and the diamond represents the mean.

When participant characteristics were included in the mixed effects model, results revealed a significant main effect of participant age, such that older children generally anticipated lower social support for all leaders than younger children, $b = –0.14$, $SE = 0.03$, $p < .001$. There was no significant main effect of participant race or ethnicity, $b = –0.07$, $SE = 0.10$, $p = .48$; or participant SES, $b = –0.11$, $SE = 0.06$, $p = .073$. There were also no significant interactions between these variables and participant gender or leader gender condition in any of the models (full results in the Online Supplement).

Anticipated cooperation with leaders. The basic mixed effects model revealed no significant main effect of participant gender, $b = –0.12$, $SE = 0.12$, $p = .31$, but there was a significant effect of leader gender condition, such that children overall anticipated more

cooperation with the female leader (M = 2.89, SE = 0.06) than with the male leader (M = 2.77, SE = 0.06) b = 0.13, SE = 0.05, p = .008. The two-way participant gender × leader gender interaction was not significant., b = –0.17, SE = 0.09, p = .069.

When participant characteristics were included in the mixed effects model, results revealed a significant main effect of participant age, such that older children generally anticipated lower cooperation with all leaders than younger children, b = –0.08, SE = 0.04, p = .036. Participant age also interacted significantly with leader gender, b = –0.07, SE = 0.03, p = .014. Age had no effect on anticipated cooperation with male leaders, b = –0.04, SE = 0.04, p = .30; however, older children anticipated less cooperation with female leaders compared to younger children, b = –0.11, SE = 0.04, p = .004. There was no significant main effect of participant race or ethnicity, b = –0.07, SE = 0.10, p = .48; higher participant SES was associated with anticipating lower cooperation with leaders, b = –0.19, SE = 0.07, p = .009. There were no significant interactions between these two variables and participant gender or leader gender condition (full results in the Online Supplement).

Perceived leader efficacy. There were no significant effects of participant gender, b = –0.02, SE = 0.10, p = .82, or leader gender, b = 0.04, SE = 0.03, p = .15, and their interaction was not significant, b = –0.05, SE = 0.06, p = .38. When participant characteristics were included in the model, results revealed no significant main effects and no interactions with participant gender or leader gender condition (full results in the Online Supplement).

Expectations for Self in Leader Role

Interest in Leader Role. In the "game" part of the study, the basic regression analysis revealed that children were significantly more interested in the leader role in the communal leader condition (M = 0.18, SE = 0.08) compared to the control condition (M = –0.18, SE = 0.08),

b = 0.35, *SE* = 0.11, *p* = .003 (see Figure 4). Children also expressed significantly more interest in the leader role in the male norm condition (*M* = 0.13, *SE* = 0.08) compared to the gender-neutral norm condition (*M* = –0.12, *SE* = 0.08), *b* = –0.25, *SE* = 0.12, *p* = .032. Interest in the leader role was similar among girls (*M* = 0.08, *SE* = 0.08) and boys (*M* = –0.08, *SE* = 0.08), *b* = 0.16, *SE* = 0.12, *p* = .16. No interactions were significant, *p*s > .22.

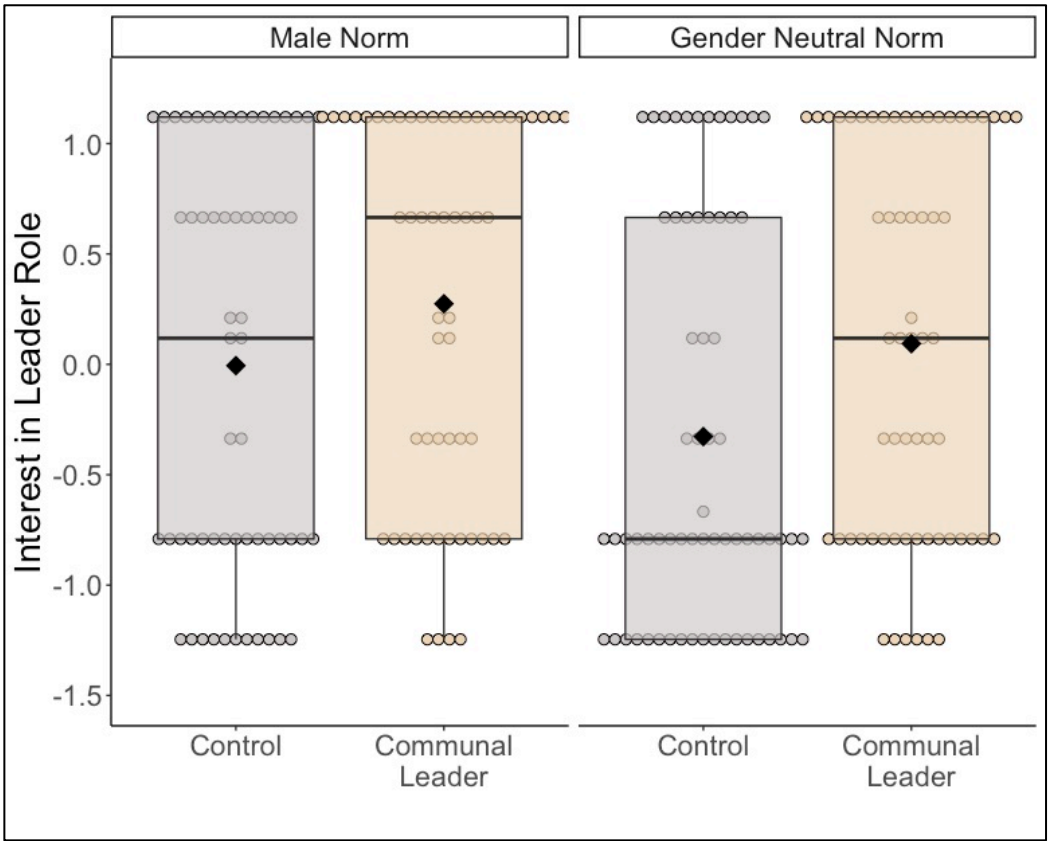

Fig. 4. Interest in leader role as a function of leader role condition and gender norm condition in Study 3. Each dot represents an individual participant's response; a box plot is overlaid on the individual data points. Within each box plot, the solid line in the middle represents the median, and the diamond represents the mean.

We found similar results when we added participant age to the model as a factor. Participant age had no significant relationship with interest in the leader role, *b* = –0.02, *SE* = 0.03, *p* = .52, and there were no significant interactions between participant age, gender, leader role condition, or gender norm condition, *p*s > .20.

As in the basic model, when we included participant race or ethnicity in the regression model, results again revealed significantly more interest in the leader role in the male norm condition (M = 0.14, SE = 0.09) compared to the gender-neutral norm condition (M = –0.16, SE = 0.08), b = –0.32, SE = 0.12, p = .012. The main effect of leader role condition was also significant, b = 0.34, SE = 0.12, p = .007, but it was qualified by a significant three-way interaction with participant gender and race/ethnicity, b = 1.24, SE = 0.51, p = .015. We examined this interaction by testing the two-way participant gender × leader role condition separately for children of color (n = 96) and White children (n = 127). For children of color, there was a significant main effect of leader role condition, b = 0.48, SE = 0.19, p = .013, qualified by a marginal interaction with gender, b = –0.74, SE = 0.38, p = .055. For boys, the leader role condition manipulation had a significant effect, b = 0.88, SE = 0.28, p = .002, such that boys of color were more interested in the leader role in the communal leader condition (M = 0.30, SE = 0.19) compared to the control condition (M = –0.57, SE = 0.21). For girls of color, the effect of leader role condition was not significant, b = 0.14, SE = 0.26, p = .59.

For White children, the interaction between leader role condition and participant gender was not significant, b = 0.45, SE = 0.32, p = .16; there were no significant main effects, ps > .10.

Anticipated Social Support. The basic regression model revealed that children anticipated significantly more social support from others in the communal leader condition (M = 3.22, SE = 0.06) compared to the control condition (M = 2.94, SE = 0.06), b = 0.28, SE = 0.09, p = .001. Additionally, girls overall anticipated significantly more social support (M = 3.17, SE = 0.06) than boys (M = 2.98, SE = 0.06), b = 0.19, SE = 0.09, p = .032. No other effects were significant, ps > .10.

Results were similar when participant age was added to the model as a factor. Older age was significantly associated with lower anticipated social support, $b = –0.08$, $SE = 0.03$, $p = .003$. There were no significant interactions between participant age, gender, leader role condition, or gender norm condition, ps > .08.

Results were also similar when we included participant race or ethnicity in the regression model. There was a marginal interaction between participant gender and race or ethnicity, $b = 0.33$, $SE = 0.19$, $p = .078$, such that White girls ($M = 3.25$, $SE = 0.09$) anticipated significantly more social support than White boys ($M = 2.94$, $SE = 0.08$), $b = 0.31$, $SE = 0.12$, $p = .010$; girls and boys of color anticipated similar levels of social support, $b = –0.02$, $SE = 0.14$, $p = .88$. No other effects were significant, ps > .18.

Anticipated Cooperation. Results of the basic regression model revealed that children anticipated significantly more cooperation from others in the communal leader condition ($M = 3.43$, $SE = 0.06$) compared to the control condition ($M = 3.08$, $SE = 0.06$), $b = 0.35$, $SE = 0.08$, $p < .001$. Girls overall anticipated significantly more cooperation ($M = 3.34$, $SE = 0.06$) than boys ($M = 3.15$, $SE = 0.06$), $b = 0.18$, $SE = 0.08$, $p = .028$. No other effects were significant, ps > .74.

Results were similar when participant age was added to the model as a factor, and no other effects were significant, ps > .34.

When we included participant race or ethnicity in the regression model, there was a significant interaction between participant gender and race or ethnicity, $b = 0.39$, $SE = 0.19$, $p = .036$, such that White girls ($M = 3.25$, $SE = 0.09$) anticipated significantly more cooperation than White boys ($M = 2.94$, $SE = 0.08$), $b = 0.37$, $SE = 0.12$, $p = .002$; girls and boys of color anticipated similar levels of cooperation, $b = –0.03$, $SE = 0.14$, $p = .84$. No other effects were significant, ps > .15.

Self-Efficacy as Leader. The basic regression model showed that children's self-efficacy was significantly higher in the communal leader condition (M = 3.29, SE = 0.07) compared to the control condition (M = 3.01, SE = 0.07), b = 0.29, SE = 0.10, p = .004. Self-efficacy was numerically higher for girls (M = 3.24, SE = 0.07) than for boys (M = 3.05, SE = 0.07), b = 0.18, SE = 0.10, p = .058. No other effects were significant, ps > .24.

Results were similar when participant age was added to the model as a factor, and no other effects were significant, ps > .34. Similarly, none of the effects changed appreciably when we added participant race or ethnicity as a factor in the model, and no other effects were significant, ps > .09.

Discussion

As a whole, the results of the "game" part of Study 3 (which was similar to Study 2) aligned with our expectation that children's interest in a leader role would be stronger when this role was more compatible with communality. The leader role manipulation had reliable effects across dependent variables, such that children were more interested in the leader role in the communal leader condition compared to the control condition, and they anticipated stronger social support and cooperation from others if they were to be the leader, as well as higher self-efficacy as leaders in the communal leader (vs. control) condition. The effect of leader role condition on interest in the leader role was particularly strong among boys of color. In contrast, the gender norm manipulation did not have reliable effects on anticipated social support or cooperation, or on children's sense of self-efficacy. Surprisingly, children expressed more interest in the leader role in the male norm condition rather than the gender-neutral norm condition. Finally, unexpectedly, although they did not reliably express more interest in the leader role than boys, girls anticipated stronger social support and cooperation than boys.

The results of the "story" part in Study 3, which was similar to Study 1, indicate that girls expect female leaders to receive less social support than boys, and older children expect less cooperation with female leaders compared to younger children. These results are similar to those in Study 1, in which girls expected all leaders to receive less social support from peers compared to boys. In Study 2 we also found some indication that boys may actually have more positive expectations for female leaders compared to male leaders: Boys anticipated stronger social support and more cooperation when the leader was a girl than when the leader was a boy. These results converge with the results of Study 2, in which boys were less likely to expect support and cooperation with own-gender leaders (relative to girls). Again, as in Study 2, we found no evidence of a gender gap in perceptions of leader efficacy as a function of leader gender.

General Discussion

Adopting a developmental perspective can advance our understanding of the persistent gender imbalance in leadership roles among adults (Heck et al., 2021). Together, the three studies in the current investigation indicate that gender gaps in leadership interest may begin early in life. We focused on the potential social costs of leadership for children in different domains. If girls expect leaders to be unsupported by their peers (compared to boys), then they might be more reluctant than boys to act as leaders.

We found some evidence for a gender gap in the anticipation of social support for leaders, but our results were mixed. On the one hand, in Study 1, girls expected lower social support for leaders than boys regardless of the gender of the leader in various contexts involving group activities. Moreover, in Study 3, girls expected female leaders to receive less social support than boys in the context of a group game that involved a leadership role. These results align with research with adult samples, in which women tended to anticipate lower support from

others than men when they behaved like leaders (Brescoll, 2011), and they suggest that gender differences in the social expectations associated with leadership might emerge very early in life. On the other hand, we did not find a reliable gender difference in children's expectations that others would support them or cooperate with them if they were to occupy a leader role, in either Study 2 or Study 3. Moreover, in Study 2, girls anticipated stronger social support than boys for leaders of their own gender as well as more cooperation with them (although girls' anticipation of cooperation for own-gender leaders decreased with age). Thus, whereas there is some indication that girls may expect leaders to incur more social penalties than boys in some contexts, this expectation may not extend to leadership as a whole and, under some circumstances, girls may even be more optimistic than boys about the social outcomes for leaders of their own gender group.

Nevertheless, our research provided some evidence that girls may be less interested than boys in claiming a leader role. Girls were less likely than boys to want to occupy a leader role in a group game with other children in Study 2. This gender difference was stronger in young, White children, as we discuss in more depth below. However, we did not find a gender gap in interest in the leader role among older children in Study 2, and we did not find a gender difference at all in Study 3. These mixed results suggest that the consistent gender gaps in leadership ambition that have been documented in adults (Fisk & Overton, 2019; Fox & Lawless, 2014; Goodwin et al., 2020) are less robust at younger ages, as has been suggested elsewhere (e.g., Dolan & Lawless, 2021).

The notion that young girls might be just as interested as young boys in leader roles raises the question of why or how might this interest wane over time. It also highlights the potential value in early interventions seeking to nurture young girls' leadership ambition. For example, the

results of Study 3 strongly suggest that emphasizing the communal aspects of leadership could increase leadership ambition in all children, as is the case with adult women (e.g., Pate & Fox, 2018; Schneider et al., 2016; Schneider & Bos, 2019). Children in Study 3 expressed more interest in being a leader when the leader role was described as helpful than when the leader role did not allude to communality, and they anticipated stronger social support and cooperation from others as well as higher self-efficacy as leaders. These findings underscore how the way in which leadership is discussed around children may influence their attitudes toward leadership roles and potentially have meaningful consequences for gender equality in the long run.

Although we did not expect to find a different pattern in children's responses based on their racial or ethnic background, our studies suggest that this is an important factor to examine in order to understand how children think about leadership, as has been proposed by others (e.g., Heck et al., 2021). As is the case with adults, intersecting identities appear to play a role in children's attitudes toward leader roles in our studies, which employed fairly diverse samples. Specifically, we found some evidence to suggest that the gender gap in interest in leadership may be more pronounced in White children and weaker in children of color, and we also found that White children as a whole anticipated lower social support for own-gender leaders compared to children of color. Interestingly, in Study 3, describing the leader role as communal was particularly effective in increasing interest in the leader role among boys of color. Whereas we do not have a compelling explanation for these patterns, they clearly underscore the need for additional research into children's attitudes toward leadership from an intersectional perspective.

The three studies in the current investigation represent a necessary first step in uncovering the roots of gender gaps in leadership, but they are not without limitations. One of them is the narrow focus on a specific aspect of leadership—an ability to give others orders—

which represents only one dimension of a multifaceted construct. The kind of power and social influence that characterize leaders can be based on a variety of factors such as resource control or expertise (French & Raven, 1959), and can involve much more than issuing directives, such as possessing the freedom to make decisions independently from others or the ability to set group norms (Gülgöz & Gelman, 2017). Future research may examine gender gaps in interest in leader roles across these different dimensions in order to arrive at a more complete understanding of the origins of gender differences in leadership ambition.

In conclusion, our results indicate that gender gaps in leadership interest may start early in life and that the expected social rewards or costs of leadership could play an important role in shaping these gender differences. Framing leadership in more communal ways could be an effective way to encourage children's participation in activities and roles that allow them to develop leadership skills, regardless of their gender.

References

Boston, J. S., & Cimpian, A. (2018). How do we encourage gifted girls to pursue and succeed in science and engineering?. *Gifted Child Today*, *41*(4), 196–207. https://doi.org/10.1177/1076217518786955

Brescoll, V. L. (2011). Who takes the floor and why: Gender, power, and volubility in organizations. *Administrative Science Quarterly*, *56*(4), 622–641. https://doi.org/10.1177/0001839212439994

Brescoll, V. L., Okimoto, T. G., & Vial, A. C. (2018). You've come a long way… maybe: How moral emotions trigger backlash against women leaders. *Journal of Social Issues*, *74*(1), 144–164. https://doi.org/10.1111/josi.12261

Caleo, S., & Halim, M. L. D. (2021). Gender and the development of leadership stereotypes. *Psychological Inquiry*, *32*(2), 72–76. https://doi.org/10.1080/1047840X.2021.1930745

Diekman, A. B., Joshi, M. P., White, A. D., & Vuletich, H. A. (2021). Roots, barriers, and scaffolds: Integrating developmental and structural insights to understand gender disparities in political leadership. *Psychological Inquiry*, *32*(2), 77–82. https://doi.org/10.1080/1047840X.2021.1930752

Dolan, K., & Lawless, J. L. (2021). The importance of political science for understanding the developmental roots of gender gaps in politics. *Psychological Inquiry*, *32*(2), 83–88. https://doi.org/10.1080/1047840X.2021.1930762

Eagly, A. H., & Heilman, M. E. (2016). Gender and leadership: Introduction to the special issue. [Editorial]. *The Leadership Quarterly, 27*(3), 349–353. https://doi.org/10.1016/j.leaqua.2016.04.002

Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review*, *109*(3), 573–598. https://doi.org/10.1037//0033-295X.109.3.573

Fisk, S. R., & Overton, J. (2019). Who wants to lead? Anticipated gender discrimination reduces women's leadership ambitions. *Social Psychology Quarterly*, *82*(3), 319–332. https://doi.org/10.1177/0190272519863424

Fox, R. L., & Lawless, J. L. (2014). Uncovering the origins of the gender gap in political ambition. *American Political Science Review*, *108*(3), 499–519. https://doi.org/10.1017/S0003055414000227

French, J. R., Raven, B., & Cartwright, D. (1959). The bases of social power. In Shafritz, J. M., Ott, J. S., & Jang Y. S. (Eds.). *Classics of Organization Theory*, *7*, 311–320.

Goodwin, R. D., Dodson, S. J., Chen, J. M., & Diekmann, K. A. (2020). Gender, sense of power, and desire to lead: Why women don't "Lean In" to apply to leadership groups that are majority-male. *Psychology of Women Quarterly*, *44*(4), 468–487. https://doi.org/10.1177/0361684320939065

Gülgöz, S., & Gelman, S. A. (2017). Who's the boss? Concepts of social power across development. *Child Development*, *88*(3), 946–963. https://doi.org/10.1111/cdev.12643

Heck, I. A., Santhanagopalan, R., Cimpian, A., & Kinzler, K. D. (2021). Understanding the developmental roots of gender gaps in politics. *Psychological Inquiry*, *32*(2), 53–71. https://doi.org/10.1080/1047840X.2021.1930741

Heilman, M. E., & Okimoto, T. G. (2007). Why are women penalized for success at male tasks?: the implied communality deficit. *Journal of Applied Psychology*, *92*(1), 81–92. https://doi.org/10.1037/0021-9010.92.1.81

Koch, S. C. (2005). Evaluative affect display toward male and female leaders of task-oriented groups. *Small Group Research*, *36*(6), 678–703. https://doi.org/10.1177/1046496405281768

Koenig, A. M., Eagly, A. H., Mitchell, A. A., & Ristikari, T. (2011). Are leader stereotypes masculine? A meta-analysis of three research paradigms. *Psychological Bulletin*, *137*(4), 616–642. https://doi.org/10.1037/a0023557

Moss-Racusin, C. A., & Rudman, L. A. (2010). Disruptions in women's self-promotion: The backlash avoidance model. *Psychology of Women Quarterly*, *34*(2), 186–202. https://doi.org/10.1111/j.1471-6402.2010.01561.x

Pate, J., & Fox, R. (2018). Getting past the gender gap in political ambition. *Journal of Economic Behavior & Organization*, *156*, 166–183. https://doi.org/10.1016/j.jebo.2018.10.002

Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes. *Psychology of Women Quarterly*, *26*(4), 269–281. https://doi.org/10.1111/1471-6402.t01-1-00066

Schneider, M. C., & Bos, A. L. (2019). The application of social role theory to the study of gender in politics. *Political Psychology*, *40*, 173–213. https://doi.org/10.1111/pops.12573

Schneider, M. C., Holman, M. R., Diekman, A. B., & McAndrew, T. (2016). Power, conflict, and community: How gendered views of political power influence women's political ambition. *Political Psychology*, *37*(4), 515–531. https://doi.org/10.1111/pops.12268

Sinclair, L., & Kunda, Z. (2000). Motivated stereotyping of women: She's fine if she praised me but incompetent if she criticized me. *Personality and Social Psychology Bulletin*, *26*(11), 1329–1342. https://doi.org/10.1177/0146167200263002

StataCorp. 2019. Stata Statistical Software: Release 16. College Station, TX: StataCorp LLC.

Tomasello, M. (2014). The ultra-social animal. *European Journal of Social Psychology*, *44*(3), 187–194. https://doi.org/10.1002/ejsp.2015

Tyler, T. R. (2002). Leadership and cooperation in groups. *American Behavioral Scientist*, *45*(5), 769–782. https://doi.org/10.1177/0002764202045005003

Vial, A. C., Napier, J. L., & Brescoll, V. L. (2016). A bed of thorns: Female leaders and the self-reinforcing cycle of illegitimacy. *The Leadership Quarterly*, *27*(3), 400–414. https://doi.org/10.1016/j.leaqua.2015.12.004

World Economic Forum. (2020). Global Gender Gap Report 2020. Retrieved from https://www3.weforum.org/docs/WEF_GGGR_2020.pdf

Appendix A

STORY 1: School
"This story happened at school. One day, there was a [small/big] group of [boys and girls/boys/girls] at school, and they wanted to come up with a play and invite everyone in the school to see it. [Tim/Lucy] was part of this group. When the group decided to come up with a play, [Tim/Lucy] told the other children, 'I will be in charge of the school play. I will make decisions and tell everyone else what to do.'"

STORY 2: Park
"This story happened at the park. One day, there was a [small/big] group of [boys and girls/boys/girls] at the park, and they wanted to play a game together. [Lucas/Jane] was part of this group. When the group decided to play a game together, [Lucas/Jane] told the other children, 'I will be in charge of the game. I will make decisions and tell everyone else what to do.'"

STORY 3: Beach
"This story happened at the beach. One day, there was a [small/big] group of [boys and girls/boys/girls] at the beach, and they wanted to build a sandcastle. [Jimmy/Kasey] was part of this group. When the group decided to build a sandcastle, [Jimmy/Kasey] told the other children, 'I will be in charge of building the sandcastle. I will make decisions and tell everyone else what to do.'"

STORY 4: Camp
"This story happened at summer camp. One day, there was a [small/big] group of [boys and girls/boys/girls] at summer camp, and they wanted to find firewood to start a campfire. [Alex/Sara] was part of this group. When the group decided to find firewood, [Alex/Sara] told the other children, 'I will be in charge of finding firewood. I will make decisions and tell everyone else what to do.'"

Appendix B

ZARKY GAME DESCRIPTION

"In the Zarky Game, children play together, and they don't need anyone to be in charge. But sometimes one of the kids in the game wants to be the Zarky Boss. At the beginning of the game, all of the kids are sitting down, see? If a kid stands up and says, 'I will be the Zarky Boss,' then this kid becomes the Zarky Boss. The Zarky Boss is then in charge of the game, makes decisions, and tells everyone else what to do. The kids who stay seated and who do not stand up are the followers. They do whatever the Zarky Boss says."

Appendix C

CONTROL (AGENTIC) LEADER CONDITION

"This is the Zarky Game. In the Zarky Game, children play together, and they don't need anyone to be in charge. You don't need a boss when playing the Zarky Game. But sometimes, one of the kids in the game wants to be the Zarky Boss. At the beginning of the game, all the kids are sitting down, see? If a kid stands up and says, 'I will be the Zarky Boss,' then this kid becomes the Zarky Boss. The Zarky Boss is then in charge of the game, makes decisions, and tells everyone else what to do. Even though you don't need a boss when playing the Zarky Game, some kids decide to stand up and take charge. The kids who stay seated and who do not stand up are the followers. They do whatever the Zarky Boss says."

COMMUNAL LEADER CONDITION

"This is the Zarky Game. In the Zarky Game, children play together and it is very helpful if one of them is in charge. It is very helpful to have a boss when playing the Zarky Game. Sometimes, one of the kids in the game wants to be the Zarky Boss. At the beginning of the game, all the kids are sitting down, see? If a kid stands up and says, 'I will be the Zarky Boss,' then this kid becomes the Zarky Boss. The Zarky Boss is then in charge of the game, makes decisions, and tells everyone else what to do. Because it is very helpful to have a boss when playing the Zarky Game, some kids decide to stand up and take charge. The kids who stay seated and who do not stand up are the followers. They do whatever the Zarky Boss says."

MALE NORM (LEFT) CONDITION & GENDER-NEUTRAL NORM (RIGHT) CONDITION

"Look! All of these kids played the Zarky Game last week, and they decided that they wanted to be the Zarky Boss. See? Many boys and [some/many] girls decided that they wanted to be the Zarky Boss."