A director like me: Teacher-leader racial/ethnic match and job outcomes in child care centers

Todd Hall*
University of Virginia

Daphna Bassok
University of Virginia

Justin B. Doromal
Brown University

Anna J. Markowitz
University of California, Los Angeles

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*Corresponding author. Contact: PO Box 400879, Charlottesville, VA 22904. tmh4xa@virginia.edu

Research Highlights

- Explored teacher-leader racial/ethnic match in child care centers
- Used survey and administrative data from 1,011 teachers at 188 child care centers
- White teachers had leader racial match more often than Black and Hispanic teachers
- With controls, match had no significant link to views of leader, satisfaction, or turnover

Abstract

The leaders of child care centers shape the everyday experiences of child care teachers, who play a critical role in supporting young children. While research has linked leadership to policy-relevant outcomes such as teacher job satisfaction and turnover, little is known about specific leader characteristics linked to teacher job outcomes. In K-12, one key factor associated with increased job satisfaction and lower turnover is teacher-principal racial/ethnic match, however there is no evidence to date on how teacher-leader racial/ethnic match relates to teacher job outcomes in child care settings. Using data from a sample of 1,011 teachers at child care centers in Virginia, this study documents the prevalence of teacher-leader racial/ethnic match. We estimate associations between racial/ethnic match and teachers' views of leadership, job satisfaction, turnover intentions, and turnover after six months. Although two-thirds of child care teachers experienced racial/ethnic match with their child care center leader, Black and Hispanic teachers were far less likely to experience racial/ethnic match than White teachers. We did not find significant associations between racial/ethnic match and teacher job outcomes after adjusting for covariates. We discuss potential explanations, directions for future research, and implications for policy.

Leaders of child care centers can support the teachers at their site, who in turn play a critical role in children's lives. Like K-12 school principals, child care leaders can serve as instructional leaders, coaches, and mentors, providing professional development to teachers at their centers (Grissom & Keiser, 2011; Zinsser & Curby, 2014). Leaders may also shape teachers' experiences through their role managing staffing and budget decisions and cultivating positive workplace climate (Doromal & Markowitz, 2021; Zinsser & Curby, 2014). Indeed, when child care teachers rate their leaders as more supportive, they report greater job satisfaction and leave their jobs at lower rates (Doromal & Markowitz, 2021). However, research on the importance of leaders in child care settings—independently-run centers not funded by federal Head Start and not operated by schools—is sparse. We know little about factors that influence how child care teachers perceive their leaders or about the relationship between these views and policy relevant outcomes, such as job satisfaction and retention (Muijs et al., 2004).

One salient characteristic that may contribute to both child care teachers' views of their leader and their job outcomes is having a shared racial/ethnic background. In the K-12 context, teacher-principal racial/ethnic match has been linked to improved teacher job satisfaction and reduced teacher turnover, perhaps by enhancing trust, support, and open communication (Bartanen & Grissom, 2021; Grissom & Keiser, 2011; Lindsay & Egalite, 2020).

It is possible that teacher-leader racial/ethnic match in early childhood settings plays a similar role. Indeed, a recent National Academies of the Sciences report emphasized the importance of leaders who mirror their staff (IOM/NRC, 2015). Likewise, the largest professional organization of early childhood educators, NAEYC, has advocated for more representation of women of color in leadership roles (NAEYC, 2019). Policymakers, practitioners, and researchers have also voiced concern about what ideas are reinforced when

Black and Hispanic women are underrepresented in child care leadership (Johnson-Staub, 2017; Sandstrom & Schilder, 2021). There is no evidence, however, on whether teacher-leader racial/ethnic match is associated with key teacher outcomes such as views of leadership, job satisfaction, and turnover in child care or in early childhood education (ECE) more broadly.

Examining the relationship between teacher-leader racial/ethnic match and job outcomes in child care matters because the findings may highlight ways to better support and retain child care teachers from diverse backgrounds (Bartanen & Grissom, 2021; Brezicha & Fuller, 2019; Lindsay & Egalite, 2020). The child care workforce includes a large proportion of teachers of color (Austin et al., 2019); if racial/ethnic match is associated with job satisfaction and retention, as in K-12, this should inform workforce recruitment and retention policies.

However, patterns observed in K-12 may not transfer to child care. First, racial/ethnic match might not counteract the poverty-level wages, challenging working conditions, and high turnover rates common to these settings (Bassok, Smith, et al., 2021; McDonald et al., 2018; McLean et al., 2021).

Further, having a leader of the same race/ethnicity might be less salient in child care, where the workforce is more diverse than in K-12. K-12 teachers are predominantly White (Spiegelman, 2020), which can result in greater isolation for teachers of color, and in turn less job satisfaction (Grissom & Bartanen, 2022; Kemper Patrick & Arturo Santelli, 2022; Ravenell et al., 2018). In 2017, 79% of all traditional public school teachers and 85% of all private school teachers in the United States were non-Hispanic White (Taie & Goldring, 2020). In Virginia, the context for this study, 80% of public school educators in 2020-2021 were non-Hispanic White (Virginia Department of Education, 2022). In contrast, a 2019 survey of early educators in Virginia found that 54% of lead teachers in child care centers were White (Bassok et al., 2020).

Nationally in 2019, 24% of educators in child care centers identified with a race other than White and 13% identified as Hispanic, regardless of race (Greenberg & Luetmer, 2022).

This paper is the first we know of to explore teacher-leader racial/ethnic match in child care centers. Using survey and state administrative data from Virginia, we address two research questions: 1) what is the prevalence of teacher-leader racial/ethnic match in child care centers, and 2) what is the relationship between racial/ethnic match and teacher job outcomes, including teachers' views of their leader, job satisfaction, turnover intentions, and observed six-month turnover.

Why Are Child Care Leaders Important?

Stable, well-supported teachers are essential for high-quality child care. Unfortunately, child care teachers face difficult jobs with few supports and low compensation (McLean et al., 2021). These conditions likely contribute to high annual turnover in child care—nationally, 16% at for-profit, independent centers and 27% at chains—and weaken the teacher-child interactions that support child development (Tran & Winsler, 2011; Whitebook et al., 2014; Yoshikawa et al., 2013). Turnover disrupts teacher-child relationships, wastes investments in teacher training and professional development, and diverts effort from quality improvement (Cassidy et al., 2011; Kwon et al., 2020; Whitebook & Sakai, 2003). In contrast, job satisfaction is positively linked to warm and stimulating teacher-child interactions (Thomason & La Paro, 2013).

In child care centers, leaders (e.g., center directors) fulfill multiple roles that support or hinder teachers in managing the challenges of their jobs, potentially increasing satisfaction and reducing turnover (IOM/NRC, 2015). Leaders shape centers' organizational culture and teacher experiences in a variety of ways. Some leaders may fulfill an instructional leadership role by providing feedback, coaching, mentoring, and professional development; others may focus on

staffing issues and creating positive work climates that support teacher well-being and job satisfaction (Zinsser et al., 2016; Zinsser & Curby, 2014). They can establish trust, foster a sense of community, counsel struggling teachers, and articulate a unified vision for the center (Doromal & Markowitz, 2021; Zinsser & Curby, 2014; Zulauf & Zinsser, 2019). Leaders also oversee staffing and budget decisions, including the provision of wages and benefits, which directly impact their teachers' satisfaction and turnover decisions (IOM/NRC, 2015; LeeKeenan & Chin Ponte, 2018). Finally, child care leaders face substantial administrative demands related to staff documentation and compliance with licensing regulations, which may temper their ability to support teaching and learning (Sims et al., 2019). For all these reasons, leaders are central to most aspects of teachers' experiences at their center.

Although there is no agreed-upon measure of leader effectiveness (Muijs et al., 2004), the way teachers view their leaders is likely an important metric. Qualitative research finds that teachers reported higher child care quality when they felt leaders cultivated a shared vision for quality (e.g., inputs, process, or child outcomes) (Andersen et al., 2018). One quantitative study finds that teachers who rated their leaders as supportive, respectful, and trustworthy were less likely to turn over (Doromal & Markowitz, 2021). Studies have also linked teacher-leader relationships to turnover in Head Start centers (Jeon & Wells, 2018; Wells, 2015). Together, this research suggests that teachers' views of their leaders could be linked to job outcomes.

How Might Teacher-Leader Racial/Ethnic Match Matter in Child Care?

There are both theoretical and empirical reasons to hypothesize that racial/ethnic match may influence teachers' views of their leaders, job satisfaction, and turnover. Representative bureaucracy theory, a public adminstration theory that has informed K-12 racial/ethnic match research, predicts that a shared leader-constituent demographic background is associated with

shared socialization experiences, and thereby decisions that align with constituent values and preferences (Lim, 2006; Meier & Stewart Jr, 1992; Selden, 1997). Consistent with this theory, a sizeable body of K-12 research has demonstrated that racial/ethnic match between teachers and principals is related to teachers' levels of trust with their leader, job satisfaction, and job retention (Bartanen & Grissom, 2021; Brezicha & Fuller, 2019; Grissom & Keiser, 2011; Lindsay & Egalite, 2020; Olsen & Huang, 2018; Viano & Hunter, 2017; Vinopal, 2018).

To date, teacher-leader racial/ethnic match has not been explored in child care, but analogous research suggests that match matters for both young children and for family engagement. For example, in pre-k and Kindergarten, teacher-child racial/ethnic match has been associated with more positive assessments of learning and behavior (Bates & Glick, 2013; Downer et al., 2016; Downey & Pribesh, 2004). Outside the classroom, racial/ethnic match between social service providers and families has been associated with home visiting attendance, participation in Head Start events, and more favorable perceptions of mental health counselors (Huang & Zane, 2016; Markowitz et al., 2020; McCurdy et al., 2003). It is thus plausible that racial/ethnic match may also matter for child care teachers. Below, we outline two hypothesized mechanisms by which teacher-leader racial/ethnic match might improve job outcomes in child care centers: leader provision of supports and shared communication style.

Leader-Provided Supports

Representative bureaucracy theory predicts that leaders may secure benefits specifically for people with a common social origin, to either show partiality or counteract existing discrimination or disadvantage (Lim, 2006; Meier & Stewart Jr, 1992). In the child care context, a same-race leader may do this by providing concrete supports for managing the day-to-day challenges of working with children—for example supporting teachers in managing child

behavior, an area that has been called out as crucial in previous research (Granja et al., 2018; Martin et al., 2018; Wymer et al., 2020; Zulauf & Zinsser, 2019). Leaders may also secure resources such as staff mental health trainings and consultants (Zinsser et al., 2016), and may more readily pursue or find more effective resources for same-race/ethnicity teachers. Leaders who share their racial/ethnic background with a teacher might also devote more time to coaching that teacher or communicating with parents on their behalf (Grissom & Jones, 2020; Martin et al., 2018). This is particularly relevant for job satisfaction and turnover as some teachers leave child care because they can find better paid, less challenging work elsewhere, and a supportive leader may counteract those challenges (McDonald et al., 2018; Whitebook & Sakai, 2003).

Leaders may also offer more encouragement and recognition to teachers with a shared racial or ethnic background (Grissom & Keiser, 2011; Viano & Hunter, 2017); and, when leaders offer formal recognition of teacher efforts or acknowledge teacher achievements (Zinsser et al., 2016), it may lead teachers to feel more respected by, supported by, and satisfied with leaders. This may matter in child care because teachers often cite the rewarding nature of the work itself as a primary reason to stay, despite low pay (McDonald et al., 2018; Vinopal, 2018).

Shared Communication Style and Values

Leaders may also be more likely to share values, preferences, and communication styles with people from a common social origin (Lim, 2006). Shared backgrounds and communication styles may make it easier for leaders and teachers to interact and work productively (Bartanen & Grissom, 2021; Grissom & Jones, 2020; Viano & Hunter, 2017). In child care, this may make teachers more comfortable asking for help and ease difficult conversations because the leader reacts in an expected and relatable manner. Having a same-race leader may also elicit more enthusiastic cooperation from teachers because they seek the approval of a leader with whom

they identify (Grissom et al., 2015; Lim, 2006). K-12 research provides some support for this theory: Teachers placed more trust in same-race principals and were more likely to apply to and remain in positions under same-race principals (Brezicha & Fuller, 2019; Goff et al., 2018).

Racial/ethnic match may also alleviate naivete about workplace racial tensions, particularly for teachers of color. This may in turn reduce burdensome expectations that teachers of color should solve race-related issues that may arise, such as racial disparities in discipline (Accavitti & Williford, 2020; Brezicha & Fuller, 2019). This open communication may also translate to a sense of trust, respect, and commitment to an anti-racist learning environment.

Evolving Evidence on Racial/Ethnic Match

Despite the evidence that racial/ethnic match matters, there are also contexts in which the hypothesized benefits of match have not been observed. For example, one K-12 study found a significant negative association between teacher-principal racial/ethnic match and teacher transfers to other schools, but not for exits from teaching (Ravenell et al., 2018). Another failed to find significant associations between match and job outcomes among inexperienced teachers (Lindsay & Egalite, 2020). This finding may be particularly relevant for child care, which has a high proportion of new teachers. In mental health counseling, there is evidence that clients prefer same-race counselors, but not that having a same-race counselor predicts treatment outcomes (Huang & Zane, 2016). There is also evidence that the salience of teacher-leader racial/ethnic match in K-12 may be declining over time: A study of multiple waves of the School Administrator Staffing Survey found a significant association between racial/ethnic match and job satisfaction in the earliest wave of data (1999-2000), but in no other year up to 2011 (Viano & Hunter, 2017). Some K-12 researchers have also suggested that associations between racial/ethnic match and job outcomes may be driven by White teachers' dissatisfaction with

Black principals (Olsen & Huang, 2018; Viano & Hunter, 2017), rather than by benefits for teachers of color. Given the differences in both workforces and work contexts between child care and K-12, research focused on racial/ethnic match in child care is warranted.

Present Study

This quantitative study explores teacher-leader racial/ethnic match and its association with job outcomes in child care for the first time. We ask two research questions:

1. What is the prevalence of teacher-leader racial/ethnic match in child care centers, and does it vary by teacher race/ethnicity?
2. What is the relationship between racial/ethnic match and teacher job outcomes, including teachers' views of their leader, job satisfaction, and observed six-month turnover, and does it vary by teacher race/ethnicity?

We hypothesize that racial/ethnic match will be common and associated with more positive views of leadership, greater job satisfaction, and lower six-month turnover. Our investigation has two key strengths. First, we analyze both common survey-reported job outcomes and unique administrative data on observed six-month teacher turnover. Second, our sample includes multiple teachers within centers, so we can compare teachers at the same center who do and do experience racial/ethnic match. Doing so better isolates the association between match and outcomes, as it accounts for other center-level characteristics that may influence teacher job outcomes. Our study thus provides new insights for policymakers looking to improve child care stability through more effective leadership, particularly in the wake of COVID-19.

Method

Data and Sample

Data were collected through an ongoing research policy partnership with the University

of Virginia, the Virginia Department of Education (VDOE), and a nonprofit partner, the Virginia Early Childhood Foundation. This partnership was formed to support Virginia's Preschool Development Grant Birth-5 (PDG) initiative, which aims to improve access to high-quality ECE throughout the state. In fall 2020, the PDG included 70 cities and counties in Virginia grouped into 15 PDG communities. All ECE programs in these communities receiving child care subsidies, state funds, or federal funds had the opportunity to participate, but this study only includes community-based child care centers (i.e., not Head Start, Early Head Start, or school-system affiliated programs). The PDG-participating communities were both rural and urban and accounted for about two-thirds of Virginia's population. They largely mirrored the demographics of the state but had slightly lower median incomes than the state average. In fall 2020, 294 child care centers, or about 29% of all subsidy-accepting centers in these communities, participated in the PDG. Within those sites all teachers working at least 30 hours per week were eligible for the Teacher Recognition Program (TRP), a financial incentive related to PDG paraticipation (Bassok, Doromal, et al., 2021).

We combined three data sources from the PDG initiative. First, we used data from a survey we administered to child care teachers from October to December 2020. All teachers at PDG-participating centers were invited to take the survey, which was available in English and Spanish. About 73% did so and received a $20 gift card for their time.

Second, we used data from a survey we fielded to leaders working at PDG-participating centers at the same time. The leader survey, which was also available in English and Spanish, aimed to reach at least one leader at each center, and did so in 85% of centers. Leader respondents also received a $20 gift card. For the present study, we retained centers where at least one leader identified their role as director, owner/director, owner, assistant director, or

principal/assistant principal. Of these, most centers (84%) had exactly one leader take the survey; in the 30 centers where multiple leaders took the survey, we retained the leader who had the most responsibility for teachers based on their title. That is, we prioritized directors, followed by owners/directors, principals, owners, and assistant directors or assistant principals. Results were not sensitive to the exclusion of centers with multiple surveyed leaders. In our final analtyic sample, 93% of leaders identified as directors, owners/directors, or owners.

Third, we used administrative teacher turnover data collected by our state partners. As part of TRP, they contacted centers to determine which of the teachers who were working 30 hours per week or more at the beginning of the study were still doing so six months later. The administrative data provide our turnover outcome measure.

Our analyses depended on knowing both teacher and leader race, so we limited the sample to child care teachers who completed the fall 2020 teacher survey and whose leader also completed a survey. Given the demographic makeup of Virginia early educators, we also restricted to teachers who self-reported Black or White as their only race or who reported Hispanic as their ethnicity regardless of race, and whose leader also reported their race/ethnicity as one of these groups. Among leader survey takers who worked at a site with teacher respondents, 89% identified as Black, White, or Hispanic. Likewise, about 87% of the teacher survey takers who had a completed leader survey identified as Black, White, or Hispanic. While teacher-leader racial/ethnic match may be important for teachers of other racial/ethnic groups, we only had sufficient samples to explore match for these three categories. Finally, we dropped teachers who had missing information on all outcome variables.

The final analytic sample included 1,011 teachers at 188 centers, with an average of five teachers per center. While our sample is large relative to most existing research on child care

leadership, it is small compared to studies of racial/ethnic match in K-12 settings, which often include tens of thousands of teachers (Grissom & Jones, 2020; Lindsay & Egalite, 2020; Ravenell et al., 2018; S. L. Viano & Hunter, 2017), raising the concern that our analyses may have low power, a point we return to in the discussion.

Measures

Race/Ethnicity and Racial/Ethnic Match

Teachers and leaders were both asked the following question: "What is the best description of your race/ethnicity? Mark all that apply." Respondents could select "American Indian or Alaskan Native, non-Hispanic," "Asian, non-Hispanic," "Black, non-Hispanic," "Hispanic, regardless of race," "Native Hawaiian or other Pacific Islander, non-Hispanic," or "White, non-Hispanic," or they could write in a preferred identification. Our question included Hispanic alongside racial categories to align with the standard approach of our VDOE partners and because asking separately can lead to misidentification for Hispanic individuals (Viano & Baker, 2020). Because we limited our sample to Black (27%), Hispanic (14%), and White (59%) respondents, no teachers or leaders had missing race/ethnicity information. White teachers are the omitted category in regressions. To operationalize teacher-leader racial/ethnic match, we created a binary variable where teachers were coded as 1 if the teacher reported the same race/ethnicity as their leader, and 0 otherwise.

Self-identified race/ethnicity can serve as a marker for shared background (Viano & Baker, 2020)—and has been used in most quantitative studies of racial/ethnic match—but does have limitations. Effects of racial/ethnic match likely depend on how teachers and leaders perceive each other, but this is not captured in our measure, and may differ from how individuals perceive themselves. This measurement error would bias estimated match effects towards zero,

as we may have coded individuals who do have perceived match as non-matched, and vice versa.

Teacher Job Outcomes

Teacher job outcomes included teacher views of their leader, job satisfaction, and turnover. We first present items used to measure these constructs, and, for views of leaders and job satisfaction, then describe how they were combined using factor analysis.

Views of Leadership. Our items assessing teachers' views of leadership initially came from the "School Leadership" subscale of the Virginia School Climate Survey, a biennial working conditions survey of licensed professionals working in traditional public schools. The survey was designed for Virginia, though some items were taken from similar surveys in North Carolina and Tennessee (Brezicha & Fuller, 2019; Kemper Patrick & Arturo Santelli, 2022). The scale is reliable among K-12 teachers (Miller, (2020), with a Cronbach's alpha for the school leadership items of 0.961, and factor loadings ranging from 0.880-0.966.

Because our study was conducted in partnership with VDOE, we started with this existing measure and made modifications as necessary to make items appropriate for child care settings (i.e., changing the phrase "school administrators" to "site leader" and "school" to "site"). Teachers responded on a five-point agreement scale from strongly disagree to strongly agree to items such as "I feel respected by the site leader" and "I feel comfortable raising issues and concerns that are important to me with the site leader" (see Appendix Table 1 for full scale). Items are similar to those of other ECE leadership scales (e.g., Ehrlich et al., 2019). We also added one new item given the racial reckoning of summer 2020: "The site leader is committed to creating an anti-racist learning environment for the children we serve."

To understand the proportion of total variance accounted for at the center level, we computed intraclass correlations (ICCs) using Stata's mixed command. ICCs ranged from 0.07 to

0.12. Missingness for views of leadership items ranged from 4-5% (see Appendix Table 1).

Job Satisfaction. This measure came from three survey items. First, teachers rated their overall satisfaction with their job on a four-point scale (*not at all, a little bit, somewhat, or very*). Second, teachers rated their satisfaction with interactions with site leaders on the same scale. Third, teachers indicated their agreement with the statement "I really enjoy my present job" on a five-point scale (strongly disagree to strongly agree). ICCs for these items were 0.06, 0.10, and 0.00, respectively. Each item was missing for roughly 4-5% of teachers (see Appendix Table 1).

Factor Analysis. Because of the large number of correlated items, we ran exploratory factor analyses on all leadership and satisfaction items in their original ordinal scales. Results supported a two-factor solution that mapped on to the original item categories based on factor loadings and eigenvalues greater than one (root mean squared error = 0.072). We then used categorical confirmatory factor analysis (CCFA) to generate factor scores to serve as dependent variables in our models (Kuhfeld & Soland, 2020). The loadings for the seven views of leadership items ranged from 0.85 to 0.93 (Cronbach's alpha = 0.95). The factor score for views of leadership was missing if the teacher did not respond to any one of the seven items (8%). The loadings for the three job satisfaction items ranged from 0.55 to 1.04 (Cronbach's alpha = 0.78). This factor was missing for teachers who did not respond to any one of the three items (6%).

Turnover. Between November of 2020 and May of 2021, a roughly six-month period, our partners contacted each center leader up to three times to check on each teacher's employment status (i.e., whether they were still employed at their site, and whether they were working 30 hours a week or more). Using this information, we constructed a turnover variable that captured whether or not a teacher was still working at their site six months after the study started. We coded turnover as 0 if the center leader reported that the teacher was still working at

the center at the end of the six-month period. We coded as 1 if at any of the three checkpoints the leader reported that the teacher was no longer working at the center. Turnover was coded as missing if our state partner was unable to collect employment data, which was the case for less than 5% of teachers. Turnover was also coded as missing for 33 teachers for whom leaders reported working fewer than 30 hours per week in the first or second check, because these teachers were not followed through May 2021. However, turnover was coded as 0 for eight teachers who leaders reported began working fewer than 30 hours in May 2021 (the third check), because they had not left their center.

Turnover Intentions. Given the missingness in our administrative turnover data, we complemented our analysis by analyzing teacher-reported *turnover intentions* from the fall survey as a separate, secondary outcome. Teachers were asked in fall 2020 how likely they were to be working at their current center in May 2021 on a four-point scale (*not likely, a little bit likely, moderately likely, and very likely*). Because most teachers (89%) selected moderately or very likely, we reverse coded and dichotomized this item, such that 1 indicated that teachers reported being not likely or a little bit likely to be working at their center. Turnover intentions were missing for 4.35% of teachers.

Covariates

Additional teacher, leader, and center characteristics may be correlated with racial/ethnic match and teachers' views of leadership, job satisfaction, and turnover. To account for this possibility, we include several of these characteristics as covariates in our regression models.

At the teacher level, we account for: age; gender; teacher's highest degree earned (high school diploma or less, Associate's degree, or Bachelor's degree or higher, with high school or less as the omitted group); whether a teacher holds a Child Development Associate (CDA)

credential; teacher role (1 = lead teacher); self-reported hourly wages; years of experience in early childhood (continuous); and age level taught (infant and toddler teacher or preschool-age teachers, with preschool-age as the omitted category).

Panel A of Table 1 provides descriptive information on teachers in our sample. About 75% were the lead teacher of their classroom. Just under half (46%) worked primarily with infants and toddlers. Almost all (98%) were female. Nearly one in four (23%) held a Bachelor's degree or higher, but most (63%) held a high school degree or less. One in four (25%) held a CDA. On average, teachers had worked in ECE for nine years, though more than one-third (36%) had three years of experience or less. On average, teachers' wages were $12.50 per hour.

At the leader level, we controlled for race/ethnicity, years of experience in ECE, and highest degree earned (high school degree or less, Associate's degree, Bachelor's degrees, or Master's degree or higher, with high school or less as the omitted category). Panel B of Table 1 presents these leader characteristics. Just over half had either a Bachelor's degree (33%) or a Master's degree or higher (18%). On average, leaders had 16.5 years of experience in ECE, and the majority (89%) had more than three years of experience.

At the center level, we controlled for the number of assistant and lead teachers employed and the number of enrolled children five and under. We also included indicators for each of the 15 PDG communities to account for local economic conditions. Panel C of Table 1 shows that the average center had about five assistant teachers and seven lead teachers and enrolled about 43 children five and under.

Table 1 also shows rates of missingness for all covariates. Missingness was less than 4% for all teacher characteristics except for years of experience (26%) and age group taught (31%). Missingness for leader education was less than 1%, and for experience, 13%. Missingness for

center characteristics ranged from 3% to 9%. We had full data for the PDG community variable.

Analysis

Our first research question was: how prevalent is teacher-leader racial/ethnic match, and does it vary by race/ethnicity? To address this, we first described the distribution of Black, Hispanic, and White teachers and leaders in our sample, then showed the prevalence of teacher-leader racial/ethnic match overall and separately for Black, Hispanic, and White teachers.

Our second research question was: how does teacher-leader racial/ethnic match relate to teacher job outcomes, including views of leadership, job satisfaction, and turnover, and does it vary by race/ethnicity? To begin, we compared the means for each outcome across teachers who did and did not experience racial/ethnic match with their leader. Although we used factor scores for our regression analyses (described later), we dichotomized individual survey items for mean comparisons, both for ease of interpretation and because most teachers responded affirmatively. We created binary outcomes, where 1 represents the affirmative—either agree/strongly agree or somewhat/very satisfied—and 0 represents the negative—disagreeing or not being satisfied. We used two-sample t-tests to determine whether the means for each outcome differed for teachers by racial/ethnic match, overall and separately for Black, Hispanic, and White teachers.

We next ran linear models that estimated the association between racial/ethnic match and our four outcomes of interest: the views of leadership factor score, the job satisfaction factor score, observed turnover, and turnover intentions. Our first model was:

$$Y_{ij} = \beta_0 + \beta_1 \text{RaceMatch}_{ij} + \beta_2 \text{Black}_i + \beta_3 \text{Hispanic}_i + \Gamma \boldsymbol{X} + \epsilon_{ij} \qquad \text{(Equation 1)}$$

where Y_{ij} is a job outcome of interest for teacher i at center j. The coefficient of interest, β_1, represents the association between teacher-leader racial/ethnic match and job outcomes, controlling for differences in each outcome across teacher racial/ethnic groups and all covariates.

We ran standard OLS models and present standardized betas for the factor score regressions; we ran linear probability models for turnover and turnover intentions, and interpreted β_1 as the average percentage-point change in the probability that a teacher turns over within six months.

The vector $\boldsymbol{X}$ represents the teacher and center covariates included in our model. We included all covariates in all models, as well as missing indicators. That is, for each covariate we included a set of dichotomous variables where 1 indicated missingness, 0 otherwise. To keep all observations in the model, we then replaced the missing values of continuous variables (age, wages, and years of experience) with the mean for each variable, and replaced missing categorical covariates with an added level. These changes allowed the indicator variables to control for any teacher, leader, or center characteristics that may be associated with missingness. Standard errors were clustered at the center level.

Next, we explored whether the associations between teacher-leader racial/ethnic match and job outcomes varied by race for each of our outcomes. Similar to Grissom and Keiser (2011), we allowed the effect of teacher-leader racial/ethnic match to vary across Black, Hispanic, and White teachers by including interaction terms between teacher-leader racial/ethnic match and teacher race/ethnicity, with the largest racial group, White, omitted:

$$Y_{ij} = \beta_0 + \beta_1 \text{RaceMatch}_{ij} + \beta_2 \text{Black}_i + \beta_3 \text{Hispanic}_i + \beta_4 \text{RaceMatch*Black}_{ij} + \beta_5 \text{RaceMatch*Hispanic}_{ij} + \Gamma \boldsymbol{X} + \epsilon_{ij} \quad \text{(Equation 2)}$$

With the addition of the interaction terms, β_1 now reflects the association between racial/ethnic match and job outcomes for the omitted group (White teachers); β_1 is the difference in the outcome for White teachers who experienced match compared to those who did not. The difference in the outcome for Black teachers who experienced match compared to Black teachers who did not is represented by $\beta_1 + \beta_4$. For Hispanic teachers, this association is $\beta_1 + \beta_5$.

Including Hispanic teachers provided enough degrees of freedom to estimate associations with match separately for Black and White teachers, but we did not interpret the coefficient for Hispanic teachers due to small sample size (only 51 Hispanic teachers experienced match).

Our center-level covariates likely do not account for all center characteristics that could be correlated with both racial/ethnic match and outcomes. To account for this, we also ran center fixed effects models, which control for any center-level factor that impacts all teachers in the same way. These models allowed us to compare the outcomes of teachers with and without racial/ethnic match who worked at the same center.

By necessity, the center fixed effects models held the leader's race constant—all teachers within a center have the same leader and the same leader race. The variation in racial/ethnic match in these models came solely from comparing teachers of different races/ethnicities who work at the same center. Since teacher race fully determined racial/ethnic match in the fixed effects regressions, we dropped the teacher race indicators and the interaction terms from Equation 2. Likewise, we could not control for director and center characteristics, which are constant within center; we did, however, include the same teacher and job characteristics as in models 1 and 2, because they varied within centers. We estimated the following model:

$$Y_{ij} = \beta_0 + \beta_1 \text{RaceMatch}_{ij} + \Gamma \boldsymbol{X} + \alpha_j + \epsilon_{ij} \quad \text{(Equation 3)}$$

where the vector $\boldsymbol{X}$ represents the remaining covariates and α_j represents the center fixed effects.

We examined the relationship between teacher-leader racial/ethnic match and job outcomes first overall (that is, in the full sample) and then in subsamples split by leader race (e.g., Grissom & Keiser, 2011; Viano & Hunter, 2017). In the full sample, β_1 is the relationship between match and outcomes, pooled across all teacher and leader races.

Finally, we split our sample by leader race and re-estimated Equation 3 within each

subsample (e.g., Black leader, White leader). In splitting the sample by leader race, we retained within-center variability in teacher race and thus could assess whether associations varied by teacher race. In the Black leader subsample models, β_1 is the relationship between match and job outcomes for Black teachers, that is, it is the difference in outcomes between Black teachers at this site and Hispanic and White teachers; in the White leader subsample, it is the difference for White teachers as compared to Black and Hispanic teachers.

Results

Prevalence of Teacher-Leader Racial/Ethnic Match

We first documented the prevalence of teacher-leader racial/ethnic match overall and by racial/ethnic group. Table 2 shows that 27% of teachers in our sample were Black, 14% were Hispanic, and 59% were White. Leaders in our sample were more likely to be White (66%) and less likely to be Hispanic (6%) than sample teachers. Overall, 66% of teachers experienced racial/ethnic match with their leader, though rates varied by race/ethnicity. Just 42% of Black teachers and 36% of Hispanic teachers experienced match, compared to 84% of White teachers.

Relationships between Racial/Ethnic Match and Views of Leadership

Mean Comparisons: Views of Leadership

Prior to looking at the role of racial/ethnic match, we examined mean outcomes overall and by teacher/race ethnicity (Table 3, Panel A). Overall, teachers viewed their leaders positively: most felt respected by their leader (81%) and supported in managing child behavior (79%); affirmed their leader's commitment to an anti-racist learning environment (90%); and agreed that their leader supports professional development (82%). Black teachers were less likely than White teachers to feel supported in managing challenging behavior and to agree that their leader supports professional development. Black and Hispanic teachers were less likely than

White teachers to agree that their leader was committed to an anti-racist learning environment.

We next explored the relationship between teacher-leader racial/ethnic match and job outcomes. First, we used t-tests to compare unadjusted differences in individual item means for teachers who did and did not experience racial/ethnic match (Table 4). In the full sample, across all outcomes, teachers who experienced match reported more positive views of leadership than teachers who did not, but differences were statistically significant only for two of eight variables: feeling supported by the leader in managing challenging behavior and agreeing that the leader was committed to an anti-racist learning environment. By race, Black teachers who experienced racial/ethnic match reported more favorable views for all outcomes, but differences were only significant in two cases: feeling supported by the leader in managing challenging behavior (82% compared to 69%) and agreeing that the leader was committed to an anti-racist learning environment (90% compared to 77%). Hispanic teachers who experienced racial/ethnic match also reported more favorable views of leaders for all but one outcome. These differences were not statistically significant for any outcome, although our sample sizes here are small. There were no statistically significant differences for White teachers.

Regression Results: Views of Leadership

Table 5 presents results from regression models predicting the views of leadership factor score. Models include all covariates and regional indicators. Columns 1 presents results from Equation 1, which estimated the association between teacher-leader racial/ethnic match and job outcomes for all teachers. The match coefficients in column 1 are statistically and practically insignificant, suggesting no relationship between match and views of leadership.

Columns 2 present the results from Equation 2, which added interactions between teacher race/ethnicity and racial/ethnic match. These interactions test whether the associations between

match and views of leadership vary by teacher race. We again found no significant relationships.

Columns 3-5 show results from center fixed effects models in the full sample (Column 3), the Black leaders subsample (Column 4), and the White leaders subsample (Column 5). Recall that center fixed effects models estimate the relationship between racial/ethnic match and outcomes *within* a center. For this reason, each of these models omitted teachers in centers where teacher survey takers were racially homogenous, that is, where there was no within-center variability in match. In the full sample model (Column 3), this amounted to 327 teachers (N= 94 centers) omitted. These 94 centers were smaller than the heterogenous centers, so they accounted for less than half of our teacher sample (32%). Additionally, we cannot know if these centers are in fact racially homogenous or if teachers of other races/ethnicities did not respond to the survey. The racially heterogenous centers included 684 teachers who contributed to fixed effects estimates (also N=94 centers). Findings remained null in these models (Equation 3).

Relationships between Racial/Ethnic Match and Job Satisfaction and Turnover

Before analyzing associations among match, job satisfaction, and turnover, we examined dichotomized outcome means both overall and by teacher/race ethnicity (Panel B of Table 3). More than 80% of teachers responded affirmatively to all three satisfaction outcomes. About 16% of the teachers in our sample left their center over a six-month period and 11% reported that they were not likely to stay at their centers. There were no statistically significant differences in these outcomes between Black and White or between Hispanic and White teachers.

Mean Comparisons: Job Satisfaction and Turnover

Table 6 presents means and t-tests for our job satisfaction and turnover measures by experience of racial/ethnic match. We found no statistically significant differences in job satisfaction and turnover by racial/ethnic match, either overall or by race/ethnicity.

Regression Results: Job Satisfaction and Turnover

Tables 7, 8, and 9 present regression results for job satisfaction, observed turnover, and turnover intentions, respectively. We found no statistically significant associations between racial/ethnic match and any outcome across specifications, overall or by teacher race/ethnicity.

Discussion

Child care leaders can serve as source of support for early educators, and many policymakers consider effective leadership a promising approach to strengthening the workforce and ultimately better supporting young children (IOM & NRC, 2015). The empirical literature on leadership in child care settings is underdeveloped, however, and there is little research linking leader characteristics to teachers' views of their leaders, job satisfaction, or turnover. In particular, while research has established the importance of teacher-leader racial/ethnic match for teachers working in K-12 schools, no prior study has explored the role of match in child care settings. Given the large share of teachers of color working in child care (Austin et al., 2019; Bassok et al., 2020), and the high rate of turnover among these educators (Bassok, Markowitz, et al., 2021), it is worthwhile to examine teacher-leader racial/ethnic match in this context.

Using a sample of over 1,000 early educators in Virginia, we found that two-thirds of child care teachers experience racial/ethnic match, but that match was far more common for White teachers (84%) than Black (42%) or Hispanic (36%) teachers. This is on par with national data on match in K-12, where 83% of White teachers experienced principal racial/ethnic match compared to 43% of Black teachers (Viano & Hunter, 2017). The particularly low match rate for Hispanic teachers in our sample likely reflects that just 6% of leaders were Hispanic.

In our sample, most teachers reported they were satisfied and viewed their leaders positively; we found limited evidence that teachers of color viewed their leaders more favorably

when they share their race/ethnicity. Four out of five teachers felt respected by their leader. The only significant differences by racial/ethnic match were that Black teachers who experienced match were more likely to report that their leaders support them in managing challenging behavior and show commitment to an anti-racist learning environment. After adjusting for covariates, we found no evidence that teacher-leader racial/ethnic match was linked to any of our job outcomes in linear or fixed effects models

Exploring Null Findings

Our null findings were contrary to both our hypotheses and findings from K-12 settings (e.g., Bartanen & Grissom, 2021; Grissom & Keiser, 2011; Lindsay & Egalite, 2020). Below we explore plausible explanations for our null findings and pose aims for future research. We first consider how features of child care settings and the timing of our data relative to the COVID-19 pandemic may have led to a weaker relationship between racial/ethnic match and teacher job outcomes than observed in K-12 settings; then we consider the study limitations and whether our method was able to detect relationships should they exist.

Weak Link Between Racial/Ethnic Match and Outcomes

One possibility is that racial/ethnic match between teachers and leaders may be less salient in child care centers, in part because of the higher level of racial/ethnic diversity in the workforce (Austin et al., 2019; Greenberg & Luetmer, 2022; Paschall et al., 2020). That is, if child care teachers of color have a large number of colleagues of color, perhaps having a leader of color is less important for job outcomes. Through the lens of representative bureaucracy theory, child care leaders of color may not provide unique support to teachers of color or share notably different communication styles in this context. Indeed, Black K-12 teachers experience especially high turnover, lower satisfaction, and more biased teacher observations when they are

racially isolated, with few Black colleagues (Grissom & Bartanen, 2022; Kemper Patrick & Arturo Santelli, 2022; Ravenell et al., 2018)—and our data suggest that far fewer child care teachers experience this racial isolation. The greater racial diversity in child care, paired with a potential decline in the salience of racial/ethnic match in K-12 since the early 2000s (Viano & Hunter, 2017) may lead to a lack of associations relative to prior K-12 studies.

Another possibility is that the low wages and high turnover common to child care settings make teacher-leader racial/ethnic match less predictive of job outcomes. Nationally, teachers of children ages 0-5 are paid substantially less than K-8 school-based teachers, despite similar job demands, and they are nearly eight times more likely to live in poverty (McLean et al., 2021). These wages may be a main driver of our key job outcomes. Indeed, we did find a consistent, stable association between higher wages and more positive views of leadership across four of our five specifications, as well as some evidence of an association between wages and turnover intentions. We also found that teachers' age consistently predicted lower turnover, such that a teacher's life stage may be salient for job outcomes. Of course, these associations are only suggestive and warrant research explicitly focused on probing them more carefully. Finally, it may be that for new teachers—of which child care has a high share—leader racial-ethnic match is a less salient characteristic, as suggested by some K-12 research (Lindsay & Egalite, 2020). Future research could test these hypotheses.

In a similar vein, our data were collected in 2020, when the COVID-19 pandemic dramatically destabilized the child care sector, leading to unprecedented challenges with staffing (Bassok, Smith, et al., 2021). The recency of our data enhances its policy relevance, yet the pandemic may have attenuated associations that would have been observed at a different historical time, particularly given the differential impacts of COVID-19 across racial groups

(Centers for Disease Control and Prevention, 2022). Our universally favorable views of leaders and high levels of job satisfaction may have been a by-product of the pandemic-related challenges child care centers faced, and the need for teachers to rationalize their continued work amid the pandemic. This may have eliminated match-linked gaps in teachers' views of their leaders. Likewise, the pandemic may have loomed large in turnover decisions, drowning out other factors, again highlighting the importance of future research.

Notably, we were able to analyze similar data on teachers and leaders from the same research policy partnership in 2019—that is, *prior to the COVID-19 pandemic*. This sample is much smaller (619 teachers) and is only suitable as a robustness check. However, consistent with the results of the present study, we found no significant associations between racial/ethnic match and job outcomes in the pre-pandemic data.

Methodological Limitations

It is also possible that associations between racial/ethnic match and teacher job outcomes do exist in child care, and are of a similar magnitude as in K-12, but that we were underpowered to detect them. A key limitation of the current study is that we have a small sample compared to K-12 research, including a small number of Black teachers and Black leaders. Similarly, we were unable to estimate specific relationships at all for Hispanic teachers or teachers from other racial/ethnic groups, including any Asian or Pacific Islander groups. We had only 4 Asian or Pacific Islander leaders and 22 teacher survey respondents at their centers who would have met our inclusion criteria—fewer than the 11 Hispanic leaders with 112 teacher survey respondents at their sites in our sample. A recurring issue in the racial/ethnic match literature is its inability to conduct estimates for these racial and ethnic groups. Future research should focus on gathering large, diverse samples to better understand the potential role of leader diversity in supporting

both teachers and high quality ECE. Growing calls for better administrative data systems in early education (e.g., Whitebook et al., 2018) could enhance the potential for such research.

Uncertainty in measuring views of leadership and racial/ethnic match for teachers with multiple leaders might also have attenuated the associations we observed. Although the proportion of teachers with multiple leaders was modest (20%)—and the proportion of teachers with multiple leaders where the leaders are of different races is even smaller (9%)—we cannot know if teachers' survey responses corresponded to the leader we retained for our analysis (i.e., the leader with the highest responsibility). If we incorrectly coded match, this would bias our estimates toward zero. To address this concern, we conducted a robustness test where we dropped teachers with multiple leaders and reran all models. Findings did not change.

This study also only examined a small set of outcomes. Future research should explore associations between teacher-leader racial/ethnic match and outcomes that may be more closely tied to children's ECE experiences such as teacher self-efficacy, stress, and the quality of teacher-child interactions (Silver & Zinsser, 2020; Thomason & La Paro, 2013). Likewise, outcomes such as disproportionate exclusionary discipline across racial/ethnic groups might be examined in relation to racial/ethnic match between both teachers and leaders and leaders and families. In addition, future research with larger samples may be able to separately examine associations between outcomes and teacher-leader racial/ethnic match by leader type (e.g., director versus owner), exploring how different roles and staff interactions may matter. Future research might also expand to other program types (e.g., school or Head Start).

Finally, we did not find associations between teacher-leader racial/ethnic match and 6-month turnover but see potential for future research on match and staffing over a longer time horizon and broader set of outcomes. We found a 16% turnover rate over a short period that did

not include the summer months. To put this turnover in context, prior research found that a similar short-term turnover rate in child care settings (18% from fall 2016 to spring 2017) more than doubled to 41% by the following fall (Bellows et al., 2021). Prior research in K-12 found not only that turnover was lower for teachers of color with same-race principals, but also that principals of color were more likely to hire teachers of color (Bartanen & Grissom, 2021; Grissom & Keiser, 2011). Turnover is just one part of workforce development; it is possible that Black and Hispanic child care leaders may be more likely to recruit teachers of color than White leaders. It is also possible that having a leader of color may inspire teachers of color to envision themselves as a leader or help them stay in the field over a longer period. Exploring multiple points along the child care staffing pipeline is an important direction for future research.

Implications and Conclusions

The mounting evidence that teacher-child racial/ethnic match benefits children suggests that supporting the racial diversity of the childcare workforce is important (Downer et al., 2016; Markowitz et al., 2020; Meek et al., 2020a; Vinopal, 2018). Our results do not provide evidence for associations between teacher-leader racial/ethnic match and job outcomes, but many open questions remain. As the first study on teacher-leader racial/ethnic match in child care, it would be premature to conclude that match does not matter. Moreover, creating opportunities for more racial/ethnic representation in leadership may be inherently valuable or matter for outcomes that we did not examine, such as teacher-child interactions, child outcomes, long-term retention, or leadership development for teachers of color. More research is needed to better understand how match may support teachers and children, and to identify ways to enhance diversity in child care.

At the same time, policymakers can work to improve the capacity of current leaders to support the diverse teachers already working in child care settings. We found that most Black

and Hispanic teachers did not have leaders who shared their race/ethnicity. Before adjusting for covariates, Black teachers who experienced match were more likely to report their leader was committed to an anti-racist learning environment. Efforts to support White leaders' cultural competency, perhaps through training and professional development, may be beneficial.

Policymakers should also focus on addressing other predictors of job satisfaction, especially in light of COVID-19. We found no association between teacher-leader race match and teacher turnover after six months, but we did observe a 16% turnover rate. This exceeds the 10.5% one-year turnover rate for K-12 teachers in Virginia, despite covering a considerably shorter time period (Virginia Department of Education, 2021). This turnover undermines stable and high-quality care, and was likely exacerbated by the COVID-19 pandemic (Bassok, Smith, et al., 2021). Research in Virginia suggests that compensation levels predict turnover (Bassok, Hall, et al., 2021), and experimental evidence shows that financial incentives can significantly reduce turnover in child care centers (Bassok, Doromal, et al., 2021). Moreover, in the present study, we found that wages predict teachers' views of their leaders. Efforts to restructure compensation—and to address wage inequities specifically faced by early educators of color (Austin et al., 2019)—with continued investigation of how to best support teachers are likely essential.

Together, findings suggest that policymakers should invest in efforts to help all leaders engage effectively with the diverse ECE workforce, and that efforts should prioritize communities of color, including centers owned by Black and Hispanic women and those serving a high proportion of Black and Hispanic children.

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Table 1. Teacher, Leader, and Center Characteristics

Panel A: *Teacher Characteristics*	Overall	Standard Deviation	% Missing
Lead Teacher	75.1%		0.2%
Infant/Toddler Teacher	46.1%		30.9%
Female	98%		0.4%
Age	36.8	13.5	3.9%
Education			0.49%
High School Degree or Less	63.4%		
Associate's Degree	13.8%		
Bachelor's degree or higher	22.8%		
Child Development Associates	25.1%		1.9%
Experience in ECE			26.2%
Years experience in ECE	8.5	8.63	
Less than one year	12.2%		
One to three years	24.0%		
More than three years	63.8%		
Hourly Wage ($)	$12.56	3.55	1.0%
N	1011		

Panel B: *Leader Characteristics*	Overall	Standard Deviation	% Missing
Education			0.5%
High School Degree or Less	23.5%		
Associate's Degree	26.2%		
Bachelor's Degree	32.6%		
Master's Degree or Higher	17.6%		
Experience in ECE			13.3%
Years experience in ECE	16.4	9.7	
Less than one year	1.8%		
One to three years	9.8%		
More than three years	88.3%		
Role			0%
Director	65.4%		
Director/Owner	17.6%		
Owner	10.1%		
Assistant Director/Assistant Principal	4.8%		
Principal	2.1%		
N	188		

Panel C: *Center Characteristics*	Overall	Standard Deviation	% Missing
Staffing			

Number of Assistant Teachers	5.0	4.17	9.0%
Number of Lead Teachers	6.8	4.3	2.7%
Enrolled Children Ages 0-5	42.7		3.7%
N	188		

Table 2. Teachers, Leaders, and Race Match by Race

	Overall	Black	Hispanic	White
Racial/Ethnic Distribution [n (%)]				
Teacher Sample	1011 (100%)	272 (27%)	140 (14%)	599 (59%)
Leader Sample	188 (100%)	52 (28%)	11 (6%)	125 (66%)
% of teachers with race match	66%	42%	36%	84%

Table 3. Views of Leadership, Satisfaction, and Turnover Outcomes by Teacher Race

	Overall	Black		Hispanic		White
Panel A	Mean	Mean	t-test significance (relative to White)	Mean	t-test significance (relative to White)	Mean
Views of Leadership (% agreed / strongly agreed)						
Feel respected by leader	81.0%	77.8%		82.7%		82.0%
Supported by leader in managing behavior	78.8%	74.6%	*	74.4%		81.7%
Trust leader	76.2%	71.8%		78.4%		77.7%
Leader communicates clear vision	76.6%	75.2%		76.1%		77.4%
Comfortable raising issues with leader	78.1%	75.3%		73.9%		80.3%
Leader committed to antiracist learning environment	89.5%	82.8%	**	87.2%	*	93.2%
Leader supports professional development	82.2%	76.7%	*	82.1%		84.7%
Panel B						
Job Satisfaction						
Overall job satisfaction (% somewhat or very satisfied)	89.6%	89.6%		89.5%		89.5%
Satisfaction with interactions with leader	84.4%	86.0%		81.3%		84.4%
Enjoy current job (% agreed /strongly agreed)	84.0%	84.0%		85.7%		83.5%
Turnover						
Turnover (% that left site over a six-month period)	16.1%	17.9%		11.5%		16.3%
Turnover intentions (% not likely / a little bit likely to be at center in May 2021)	11.0%	11.5%		13.0%		10.2%

N

** p<0.01, * p<0.05

Note: Characteristics are self-reported and come from the teacher survey. Satisfaction items (overall job satisfaction and satisfaction with interaction with leaders) were asked on a four-point scale (not at all satisfied to very satisfied), and views of leadership items were asked on five-point scale (strongly disagree to strongly agree).

Table 4. Views of Leadership by Teacher-Leader Racial/Ethnic Match

Outcome	Overall			Black			Hispanic			White		
	Without match	Match	t-test significance	Without match	Match	t-test significance	Without match	Match	t-test significance	Without match	Match	t-test significance
Views of Leadership (% agreed / strongly agreed)												
Satisfaction with interactions with leader	83.5%	84.9%		85.2%	87.2%		77.6%	87.8%		86.0%	84.1%	
Feel respected by leader	79.2%	81.9%		76.3%	79.8%		81.0%	85.7%		82.1%	82.0%	
Supported by leader in managing behavior	74.7%	80.9%	*	69.3%	82.0%	*	73.8%	75.5%		84.2%	81.3%	
Trust leader	74.5%	77.0%		68.4%	76.4%		80.0%	75.5%		79.2%	77.4%	
Leader communicates clear vision	75.4%	77.3%		74.3%	76.4%		72.9%	81.6%		79.2%	77.1%	
Comfortable raising issues with leader	74.5%	79.9%		71.1%	81.1%		69.4%	81.6%		84.4%	79.5%	
Leader committed to antiracist learning environment	85.2%	91.8%	**	77.3%	90.1%	**	86.9%	87.8%		95.8%	92.6%	
Leader supports professional development	79.5%	83.6%		75.0%	79.1%		80.0%	85.7%		86.3%	84.4%	
N	346	665		159	113		89	51		98	501	

** p<0.01, * p<0.05

Note: Characteristics are self-reported and come from the teacher survey. Satisfaction items (overall job satisfaction and satisfaction with interaction with leaders) were asked on a four-point scale (not at all satisfied to very satisfied), and views of leadership items were asked on five-point scale (strongly disagree to strongly agree).

Table 5. Regressions of Views of Leadership on Race/Ethnicity and Racial/Ethnic Match

VARIABLES	(1)	(2)	(3)	(4)	(5)
Match (any race)	0.0158	-0.0435	0.110	0.0170	0.135
	(0.0816)	(0.220)	(0.0909)	(0.221)	(0.112)
Black	-0.131	-0.204			
	(0.103)	(0.214)			
Hispanic	-0.167	-0.176			
	(0.118)	(0.195)			
Black Leader	0.0702	-0.0102			
	(0.0868)	(0.194)			
Hispanic Leader	-0.106	-0.0830			
	(0.180)	(0.198)			
Match x Black		0.191			
		(0.386)			
Match x Hispanic		-0.0513			
		(0.391)			
Male	0.152	0.152	0.121	-0.122	0.227
	(0.179)	(0.178)	(0.248)	(0.902)	(0.273)
Lead Teacher	-0.250	-0.251	-0.116	-0.231	-0.0357
	(0.149)	(0.151)	(0.155)	(0.460)	(0.178)
Bachelors degree or higher	0.0615	0.0570	-0.0110	0.0761	-0.0226
	(0.0774)	(0.0776)	(0.0904)	(0.265)	(0.105)
Associates degree	-0.0859	-0.0853	-0.0493	0.120	-0.0544
	(0.0972)	(0.0976)	(0.107)	(0.240)	(0.130)
Child Development Associates	0.0713	0.0702	0.102	0.455	0.0372
	(0.0923)	(0.0933)	(0.100)	(0.239)	(0.124)
Hourly Wage	0.0378**	0.0380**	0.0398*	-0.0363	0.0642**
	(0.0129)	(0.0129)	(0.0170)	(0.0490)	(0.0206)
Age	-0.000245	-0.000333	-0.00155	0.00232	-0.00558
	(0.00310)	(0.00312)	(0.00313)	(0.00754)	(0.00367)
Experience in ECE	-0.00465	-0.00447	-0.00387	-0.0211	-0.00125
	(0.00626)	(0.00631)	(0.00613)	(0.0148)	(0.00705)
Leaders experience in ECE	-0.00384	-0.00375			
	(0.00446)	(0.00443)			
Enrollment Children 0-5	-0.00353	-0.00366			
	(0.00229)	(0.00229)			
Number of Assistant Teachers	0.0203	0.0211*			
	(0.0105)	(0.0104)			
Number of Lead Teachers	-0.00826	-0.00765			
	(0.00854)	(0.00854)			
Leader's highest degree = Associates	0.0228	0.0260			
	(0.128)	(0.128)			
Leader's highest degree = Bachelors	0.00799	0.00251			
	(0.135)	(0.135)			
Leader's highest degree = Masters or higher	0.0131	0.0101			
	(0.135)	(0.136)			
Constant	-0.0241	0.0290	-0.428	0.633	-0.664*
	(0.336)	(0.397)	(0.250)	(0.698)	(0.294)
Observations	935	935	935	191	651
R-squared	0.079	0.079	0.327	0.364	0.353
Center Fixed Effects?	No	No	Yes	Yes	Yes
Centers Sample	Full	Full	Full	Black Leader	White Leader

Robust standard errors in parentheses

Significance levels: ** p<0.01, * p<0.05

Note: The dependent variable is a standardized factor score for holding a positive view of the center leader. The race/ethnicity variables (Black and Hispanic) refer to the teacher's race. The regression models include the following center-level covariates: leader's race/ethnicity, leader's years of experience, leader's degree attainment, number of children ages 0-5 enrolled at the center, total number of lead teachers employed by the center, total number of assistant teachers, total number of lead teachers, community in the Preschool Development Grant (PDG), and corresponding missing indicators for each variable. The regression models also include the following individual-level covariates: whether the teacher is a lead teacher, whether the teacher teaches primarily infants and toddlers, degree attainment, whether a teacher has a Child Development Associates, their reported annual salary, their experience in early childhood education, their age, and corresponding missing indicators for each variable. The coefficients for community indicators and missing indicators are not shown above. Sample sizes vary due to missing outcome data for the 1011 teachers in the overall sample.

Table 6. Job Satisfaction and Turnover by Teacher-Leader Racial/Ethnic Match

	Overall			Black			Hispanic			White		
Outcome	Without match	Match	t-test significance	Without match	Match	t-test significance	Without match	Match	t-test significance	Without match	Match	t-test significance
Panel A												
Job Satisfaction												
Overall job satisfaction (% somewhat or very satisfied)	90.7%	89.0%		89.5%	89.8%		89.4%	89.6%		93.8%	88.7%	
Enjoy current job (% agreed /strongly agreed)	83.8%	84.0%		81.7%	87.2%		84.7%	87.5%		86.3%	83.0%	
Panel B												
Turnover												
Turnover (% that left site over a six-month period)	15.5%	16.4%		17.2%	18.9%		14.5%	6.3%		13.5%	16.8%	
N	346	665		159	113		89	51		98	501	

** p<0.01, * p<0.05

Note: Characteristics are self-reported and come from the teacher survey. Satisfaction items (overall job satisfaction and satisfaction with interaction with leaders) were asked on a four-point scale (not at all satisfied to very satisfied), and views of leadership items were asked on five-point scale (strongly disagree to strongly agree).

Table 7. Regressions of Job Satisfaction on Race/Ethnicity and Racial/Ethnic Match

VARIABLES	(1)	(2)	(3)	(4)	(5)
Match (any race)	-0.00769	-0.0354	0.0501	0.238	0.0311
	(0.0768)	(0.242)	(0.0917)	(0.210)	(0.115)
Black	0.00314	-0.0538			
	(0.0967)	(0.238)			
Hispanic	-0.216	-0.178			
	(0.123)	(0.226)			
Black Leader	0.0888	0.0168			
	(0.0962)	(0.223)			
Hispanic Leader	0.153	0.244			
	(0.187)	(0.235)			
Match x Black		0.182			
		(0.437)			
Match x Hispanic		-0.212			
		(0.433)			
Male	-0.0840	-0.0805	-0.0558	-0.129	-0.139
	(0.159)	(0.163)	(0.232)	(0.639)	(0.210)
Lead Teacher	-0.0656	-0.0644	-0.0296	0.695*	-0.0829
	(0.145)	(0.146)	(0.168)	(0.344)	(0.204)
Bachelors degree or higher	-0.0630	-0.0695	-0.0667	-0.0874	-0.0862
	(0.0832)	(0.0831)	(0.0906)	(0.256)	(0.106)
Associates degree	-0.154	-0.153	-0.116	-0.112	-0.113
	(0.0995)	(0.0998)	(0.111)	(0.222)	(0.140)
Child Development Associates	0.0911	0.0931	0.103	0.419	0.0747
	(0.0915)	(0.0925)	(0.0955)	(0.223)	(0.116)
Hourly Wage	0.0214	0.0213	0.0149	-0.0629	0.0286
	(0.0143)	(0.0143)	(0.0173)	(0.0462)	(0.0215)
Age	0.00577*	0.00563	0.00629*	0.00811	0.00303
	(0.00289)	(0.00291)	(0.00303)	(0.00677)	(0.00366)
Experience in ECE	0.00235	0.00251	0.00320	-0.0179	0.00755
	(0.00523)	(0.00524)	(0.00525)	(0.0125)	(0.00632)
Leaders experience in ECE	-0.00165	-0.00145			
	(0.00459)	(0.00453)			
Enrollment Children 0-5	-0.00419	-0.00443			
	(0.00229)	(0.00227)			
Number of Assistant Teachers	0.0142	0.0157			
	(0.0116)	(0.0114)			
Number of Lead Teachers	-0.00220	-0.00104			
	(0.00984)	(0.00979)			
Leader's highest degree = Associates	0.0519	0.0605			
	(0.123)	(0.123)			
Leader's highest degree = Bachelors	0.0591	0.0502			
	(0.136)	(0.137)			
Leader's highest degree = Masters or higher	0.0377	0.0349			
	(0.137)	(0.137)			
Constant	-0.174	-0.147	-0.501	-0.155	-0.528
	(0.321)	(0.394)	(0.260)	(0.574)	(0.330)
Observations	952	952	952	190	672
R-squared	0.079	0.080	0.315	0.412	0.322
Center Fixed Effects?	No	No	Yes	Yes	Yes
Centers Sample	Full	Full	Full	Black Leader	White Leader

Robust standard errors in parentheses

Significance levels: ** p<0.01, * p<0.05

Note: The dependent variable is a standardized factor score for teacher job satisfaction. The race/ethnicity variables (Black and Hispanic) refer to the teacher's race. The regression models include the following center-level covariates: leader's race/ethnicity, leader's years of experience, leader's degree attainment, number of children ages 0-5 enrolled at the center, total number of lead teachers employed by the center, total number of assistant teachers, total number of lead teachers, community in the Preschool Development Grant (PDG), and corresponding missing indicators for each variable. The regression models also include the following individual-level covariates: whether the teacher is a lead teacher, whether the teacher teaches primarily infants and toddlers, degree attainment, whether a teacher has a Child Development Associates, their reported annual salary, their experience in early childhood education, their age, and corresponding missing indicators for each variable. The coefficients for community indicators and missing indicators are not shown above. Sample sizes vary due to missing outcome data for the 1011 teachers in the overall sample.

Table 8. Regressions of Turnover Intentions on Race/Ethnicity and Racial/Ethnic Match

VARIABLES	(1)	(2)	(3)	(4)	(5)
Match (any race)	0.0142	0.0662	-0.0175	0.00233	-0.0352
	(0.0263)	(0.0791)	(0.0299)	(0.0815)	(0.0343)
Black	0.0272	0.0806			
	(0.0339)	(0.0753)			
Hispanic	0.0823	0.115			
	(0.0432)	(0.0868)			
Black Leader	0.0244	0.0776			
	(0.0313)	(0.0792)			
Hispanic Leader	0.0408	0.0632			
	(0.0433)	(0.0832)			
Match x Black		-0.120			
		(0.150)			
Match x Hispanic		-0.0517			
		(0.152)			
Male	-0.00805	-0.00624	-0.0574	-0.244	0.0288
	(0.0688)	(0.0702)	(0.0891)	(0.165)	(0.132)
Lead Teacher	-0.0687	-0.0685	-0.131**	-0.434**	-0.102*
	(0.0362)	(0.0359)	(0.0451)	(0.153)	(0.0464)
Bachelors degree or higher	0.0280	0.0293	0.0190	0.0870	0.0139
	(0.0259)	(0.0261)	(0.0290)	(0.0886)	(0.0348)
Associates degree	0.0184	0.0183	0.0220	-0.0116	0.0352
	(0.0305)	(0.0303)	(0.0317)	(0.0972)	(0.0375)
Child Development Associates	-0.0635**	-0.0623**	-0.0689**	-0.122	-0.0481
	(0.0233)	(0.0228)	(0.0261)	(0.0780)	(0.0283)
Hourly Wage	-0.0103*	-0.0106*	-0.00136	0.00527	-0.00354
	(0.00408)	(0.00406)	(0.00494)	(0.0137)	(0.00674)
Age	-0.00261**	-0.00258**	-0.00218*	-0.00290	-0.00191
	(0.000952)	(0.000950)	(0.000999)	(0.00288)	(0.00113)
Experience in ECE	-0.000976	-0.00104	-0.00234	0.00423	-0.00405*
	(0.00151)	(0.00152)	(0.00169)	(0.00520)	(0.00197)
Leaders experience in ECE	0.00181	0.00182			
	(0.00127)	(0.00127)			
Enrollment Children 0-5	0.000242	0.000271			
	(0.000648)	(0.000639)			
Number of Assistant Teachers	-0.00562	-0.00575			
	(0.00313)	(0.00314)			
Number of Lead Teachers	-0.000614	-0.000724			
	(0.00201)	(0.00201)			
Leader's highest degree = Associates	0.0270	0.0269			
	(0.0385)	(0.0389)			
Leader's highest degree = Bachelors	0.000813	0.00234			
	(0.0375)	(0.0376)			
Leader's highest degree = Masters or higher	-0.00711	-0.00654			
	(0.0345)	(0.0341)			
Constant	0.340**	0.292*	0.363**	0.527**	0.382**
	(0.0913)	(0.122)	(0.0730)	(0.196)	(0.0933)
Observations	967	967	967	195	680
R-squared	0.087	0.088	0.284	0.420	0.271
Center Fixed Effects?	No	No	Yes	Yes	Yes
Centers Sample	Full	Full	Full	Black Leader	White Leader

Robust standard errors in parentheses

Significance levels: ** p<0.01, * p<0.05

Note: The dependent variable is a binary indicator equal to one if the teacher reported in Fall 2020 that they expected to still work at their center in May 2021. The race/ethnicity variables (Black and Hispanic) refer to the teacher's race. The regression models include the following center-level covariates: leader's race/ethnicity, leader's years of experience, leader's degree attainment, number of children ages 0-5 enrolled at the center, total number of lead teachers employed by the center, total number of assistant teachers, total number of lead teachers, community in the Preschool Development Grant (PDG), and corresponding missing indicators for each variable. The regression models also include the following individual-level covariates: whether the teacher is a lead teacher, whether the teacher teaches primarily infants and toddlers, degree attainment, whether a teacher has a Child Development Associates, their reported annual salary, their experience in early childhood education, their age, and corresponding missing indicators for each variable. The coefficients for community indicators and missing indicators are not shown above. Sample sizes vary due to missing outcome data for the 1011 teachers in the overall sample.

Table 9. Regressions of Turnover on Race/Ethnicity and Racial/Ethnic Match

VARIABLES	(1)	(2)	(3)	(4)	(5)
Match (any race)	0.0112	0.0480	0.00111	-0.0526	-0.000414
	(0.0268)	(0.0792)	(0.0314)	(0.0989)	(0.0380)
Black	0.0292	0.0751			
	(0.0345)	(0.0756)			
Hispanic	0.0537	0.0575			
	(0.0450)	(0.0868)			
Black Leader	-0.0277	0.0222			
	(0.0418)	(0.0703)			
Hispanic Leader	-0.0182	-0.0337			
	(0.0461)	(0.0729)			
Match x Black		-0.119			
		(0.142)			
Match x Hispanic		0.0399			
		(0.140)			
Male	-0.0361	-0.0369	-0.0649	0.283	-0.154
	(0.0794)	(0.0793)	(0.0948)	(0.361)	(0.122)
Lead Teacher	0.0189	0.0174	-0.0290	0.0368	-0.0775
	(0.0455)	(0.0455)	(0.0514)	(0.198)	(0.0569)
Bachelors degree or higher	0.0596	0.0611	0.0408	0.0999	0.0285
	(0.0319)	(0.0320)	(0.0325)	(0.111)	(0.0377)
Associates degree	-0.0537	-0.0546	-0.0344	0.0167	-0.0584
	(0.0293)	(0.0296)	(0.0326)	(0.0852)	(0.0384)
Child Development Associates	-0.0426	-0.0424	-0.0443	-0.0699	-0.0452
	(0.0283)	(0.0282)	(0.0316)	(0.0993)	(0.0368)
Hourly Wage	-0.00291	-0.00296	0.000485	-0.00649	0.000212
	(0.00488)	(0.00489)	(0.00633)	(0.0175)	(0.00880)
Age	-0.00467**	-0.00459**	-0.00409**	-0.00186	-0.00486**
	(0.00109)	(0.00108)	(0.00105)	(0.00325)	(0.00122)
Experience in ECE	0.000168	4.76e-05	-0.000484	-0.000422	-0.000657
	(0.00175)	(0.00176)	(0.00178)	(0.00545)	(0.00216)
Leaders experience in ECE	-0.000516	-0.000562			
	(0.00152)	(0.00151)			
Enrollment Children 0-5	-0.000306	-0.000212			
	(0.000671)	(0.000678)			
Number of Assistant Teachers	-0.000733	-0.00137			
	(0.00301)	(0.00309)			
Number of Lead Teachers	-3.73e-05	-0.000472			
	(0.00177)	(0.00182)			
Leader's highest degree = Associates	-0.0506	-0.0526			
	(0.0458)	(0.0458)			
Leader's highest degree = Bachelors	-0.119*	-0.115*			
	(0.0472)	(0.0469)			
Leader's highest degree = Masters or higher	-0.116**	-0.113**			
	(0.0432)	(0.0429)			
Constant	0.369**	0.335*	0.324**	0.272	0.413**
	(0.122)	(0.143)	(0.0883)	(0.267)	(0.115)
Observations	965	965	965	200	674
R-squared	0.117	0.118	0.321	0.428	0.308
Center Fixed Effects?	No	No	Yes	Yes	Yes
Centers Sample	Full	Full	Full	Black Leader	White Leader

Robust standard errors in parentheses

Significance levels: ** p<0.01, * p<0.05

Note: The dependent variable is a binary indicator equal to one if the teacher left their center over a six-month period. The race/ethnicity variables (Black and Hispanic) refer to the teacher's race. The regression models include the following center-level covariates: leader's race/ethnicity, leader's years of experience, leader's degree attainment, number of children ages 0-5 enrolled at the center, total number of lead teachers employed by the center, total number of assistant teachers, total number of lead teachers, community in the Preschool Development Grant (PDG), and corresponding missing indicators for each variable. The regression models also include the following individual-level covariates: whether the teacher is a lead teacher, whether the teacher teaches primarily infants and toddlers, degree attainment, whether a teacher has a Child Development Associates, their reported annual salary, their experience in early childhood education, their age, and corresponding missing indicators for each variable. The coefficients for community indicators and missing indicators are not shown above. Sample sizes vary due to missing outcome data for the 1011 teachers in the overall sample.

Appendix A: Supplemental Tables

Table A1: Outcome Distribution for Views of Leaders, Job Satisfaction, and Turnover

Variable (Response scale if applicable)	Item if applicable	Mean	SD	% Missing	ICC
Views of Leadership					
Think about your experiences with this site leader since August. Please indicate how much you agree with the following statements. (Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree)	I feel respected by the site leader.	4.09	0.98	4.35	0.08
	The site leader supports teachers' efforts to manage challenging behavior.	4.04	0.98	3.86	0.11
	I trust the site leader to do what they say they will do.	3.98	1.04	4.15	0.11
	The site leader communicates a clear vision for this site.	4.01	1	4.35	0.12
	I feel comfortable raising issues and concerns that are important to me with the site leader.	3.99	1.07	3.56	0.11
	The site leader is committed to creating an anti-racist learning environment for the children we serve.	4.34	0.85	4.65	0.08
	The site leader supports the professional development of staff.	4.14	0.91	3.86	0.07
Job Satisfaction					
Think about your position at your site. How satisfied are you with each of the following? (Not at all satisfied, A little bit satisfied, Somewhat satisfied, Very satisfied)	The job overall	3.43	0.74	4.35	0.06
	Interactions with the site leaders	3.36	0.85	4.65	0.10
Please indicate how much you agree with the following statements. (Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree)	I really enjoy my present job.	4.23	0.86	3.86	0.00
Turnover					
Teacher turnover after six months		0.16	0.37	4.55	0.09
How likely is it that you will continue working in early childhood education? Please rate how likely you find each of the following statements. *Not likely, A little bit likely, Moderately likely, Very likely*	I will be working at this site in May 2021.	3.54	0.76	4.35	0.05

Credit Author Statement

Todd Hall: Conceptualization, Methodology, Software, Formal Analysis, Writing - Original Draft. **Daphna Bassok**: Conceptualization, Supervision, Writing- Reviewing and Editing. **Justin B. Doromal:** Methodology**,** Writing- Reviewing and Editing. **Anna J. Markowitz:** Methodology, Writing- Reviewing and Editing.