# Teacher-Student Incongruence in Perceptions of School Equity: Associations with Student

# Connectedness in Middle and High School

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**ABSTRACT** 

**BACKGROUND:** School equity refers to the extent to which students are treated fairly,

ensuring that each student receives what they need to be successful. School staff can play a vital

role in creating an equitable school climate for adolescents, but little is known about how staff

perceive equity in their school and how this in turn may relate to students' perceptions. This

study sought to explore congruence between teacher and student perceptions of school equity

and how congruence or incongruence related to students' sense of connectedness to school.

**METHODS:** Data for the study came from the Maryland Safe and Supportive Schools (MDS3)

Climate Survey, which was administered online to 5,523 school staff and 59,218 students across

104 middle and high schools.

**RESULTS:** Multilevel models indicated compared to high staff and high student ratings, there

was lower connectedness among the schools with low staff, low student ratings of equity as well

as the schools with high staff, low student and low staff, high student ratings of equity.

**CONCLUSIONS:** The findings suggest that staff perceptions of school equity are often higher

than students and incongruence in perceptions may have a negative impact on students'

connection to school.

**Keywords:** Equity, School Climate, Fairness, Connectedness

Teacher-Student Incongruence in Perceptions of School Equity: Associations with Student Connectedness in Middle and High School

## **BACKGROUND**

A school climate in which students can succeed no matter who they are and where they come from is one of the great promises of public education. Adolescents' perceptions of equitable school climate with respect to fair treatment by race, ethnicity, sex, and socioeconomic status (SES) is associated with a variety of positive outcomes.<sup>2</sup> Unfortunately, research suggests that students' perceptions of school climate, including school equity, differ. Specifically, students' perceived connection to school often varies by social position and identity characteristics.<sup>2,4</sup> To date, little research has sought to understand how school staff views of school equity relate to students' views. School staff can play a vital role in creating an equitable school climate for adolescents, 5,6 yet little is known about how staff perceive equity in their school and how this in turn may relate to students' perceptions. When school staff and students hold similar views of equitable treatment of students at school, this may suggest a more positive climate, whereas incongruence in staff and student views of equitable treatment may relate to lower levels of connectedness among students and point to targets for intervention. This study sought to explore congruence between teacher and student perceptions of school equity and how congruence or incongruence related to students' sense of connectedness to school.

# **School Equity**

Equity, by definition, is the quality of being fair and impartial, but this construct is also value-based. Equity is a demonstration of social justice which compels an ethical responsibility to avoid unfair treatment.<sup>7</sup> Equity is also different from equality, which refers to the *equal* distribution of resources and processes; in contrast, equity means that resources and processes

are *fairly* distributed in the face of systematic disadvantage.<sup>7</sup> Thus, the term 'school equity' has been used in research to describe the extent to which students are treated fairly, ensuring that each student receives what they need to be successful.<sup>8,9</sup> Specifically, school equity has been operationalized as fair and impartial treatment of all identities of students, including race, ethnicity, sex, and disability status.<sup>6,8</sup> More recently, equity has also been used describe the extent to which teachers and the school respects diversity and inclusion.<sup>6</sup> Moreover, the inverse, inequitable treatment, has been characterized as experiences and perceptions of discrimination and racism by students.<sup>10</sup>

Previous research often shows that perceptions of school equity vary by sex, race, and ethnicity. In a sample of high school students, Bottiani and colleagues<sup>4</sup> found that Black students reported significantly lower equity (ie fairness) on average as compared with White students and furthermore observed that the Black–White gap was most discordant in schools that were majority White or majority Black. Furthermore, data from middle school students showed that African American, poor, and female students perceived racial fairness in more neutral or negative terms than their White, non-poor, and male counterparts, respectively. In contrast, a study of racial and ethnic differences in perceptions of school climate found that African American high school students reported more positive perceptions of teachers' respect for diversity as compared to White and Hispanic high school students.

There are important implications for differential perceptions of equity in schools.

Gottfredson and colleagues<sup>13</sup> found that schools in which students perceived greater fairness and clarity of rules had less delinquent behavior and less student victimization. Perceptions of a fair classroom can also enhance students' motivation and effort<sup>14</sup> and their perceptions of connection with the instructor.<sup>15</sup> Conversely, perceptions of inequity or unfairness in treatment by teachers

are associated with negative outcomes among students. For example, adolescents who perceived more discrimination, compared with those who perceived less discrimination or none at all, had lower grades<sup>16</sup> and lower levels of academic engagement.<sup>17</sup> Taken together, these studies suggest the need to better understand equity and fairness in the school environment, particularly from the perspectives of students from minoritized racial, ethnic, and sex groups. Examining the dynamic relationship between student perceptions of school equity and student outcomes demonstrates a moral imperative to create a school environment where all students can learn and succeed.

### **School Connectedness**

Connectedness relates to a number of concepts in the school climate literature, including school attachment, bonding, engagement, involvement, belonging, and perceived support.

Defined as a felt sense that one is "personally accepted, respected, included, and supported by others in the school," connectedness is built on students' mutually trusting and respectful relationships with their peers and adults at school. Student-perceived school connectedness is a protective factor linked to positive educational outcomes and lower rates of risky adolescent health behaviors. Specifically, connectedness has been linked with significant developmental consequences including school engagement and achievement, school completion/graduation, the future mental health outcomes such as depression and anxiety, and anxiety, and anxiety are substance use, and initiation of sexual intercourse.

School connectedness has been measured broadly as a positive school orientation in prior research,<sup>25</sup> despite the potential that students may relate differentially to groups within the school (eg their peers versus their teachers). Furthermore, it is possible that students' global feelings towards the school might differ from their feelings towards their peers and teachers for other reasons. For example, the physical environment of the school may be comfortable and pleasant, even if their relationships with peers and teachers are not. More recent empirical research

building on the U.S. Department of Education's definition of school climate has further specified students' connectedness to their peers, teachers, and whole school as discrete domains of connectedness. <sup>26</sup> Teacher connectedness measures the extent to which students feel a sense of warmth and being cared about by their teachers, whereas peer connectedness has more to do with students' sense of belonging with and liking one another. In contrast, whole school connectedness reflects a more global sense of pride in being a part of the school and enjoyment in coming to and being at the school.

# How Students' Perceptions of School Equity Relate to Connectedness

Perceptions of school staffs' fair treatment of students regardless of their identity characteristics and social position within the school is a measure of the quality of the school environment, rather than of students' direct exposure to fair or unfair treatment. Nonetheless, we can draw parallels from research examining students' exposure to discrimination to develop hypotheses regarding how school equity might impact students' sense of connectedness at school. Direct exposure to discrimination at school, and particularly racial and ethnic-based discrimination, is longitudinally related to subsequent declines in academic performance, academic ability self-concepts, academic task values, self-esteem, and psychological resiliency. Moreover, such exposure has also been linked to increases in internalizing and externalizing mental health problems. Person–environment fit models that the ways in which individuals' perceptions of how they fit within their environment will affect how they behave within that environment. 29,30

# **Multi-informant Ratings of School Climate and Equity**

Research has shown the importance of using multiple raters in clinical assessments.<sup>31</sup> In education research, it is common practice to have school staff, students, and parents rate the

school climate. However, social cognitive theory suggests that although students and their teachers share the same physical space and time during the school day, their differing roles within the school will likely lead to discrepant subjective perceptions of the environment.<sup>32</sup> Moreover, discrepancies in perceptions of the environment may reflect differences in power, such that teachers may perceive greater control over the school climate and control, thus rating it more positively.<sup>33</sup> In contrast, students may hold more negative views of the school climate as a result of feeling less in control of the environment. In considering school equity, teacher ratings of equity may be greatly influenced by the power they have to create a culture of fairness and impartiality in their classrooms. Student ratings, on the other hand, may be more influenced by classrooms and incidents that are salient to them.<sup>34</sup> Furthermore, Bronfrenbrenner's social ecological theory suggests that factors at the school-level may influence student and staff perceptions of the school environment.<sup>35</sup> For example, the number of students enrolled and the amount of student diversity in the school may heighten attention to equity for students.

# **Current Study**

The purpose of the current study was to examine perceptions of school equity as rated by both students and teachers. We hypothesized that students would have less favorable perceptions of equity as compared to teachers who have greater influence on this environment. We also sought to investigate if teacher demographic factors would be associated with their perceptions of school equity. Lastly, the current study examined if incongruence, between teachers and students, in perceptions of school equity was associated with student connectedness. We hypothesized that when students' perceptions of school equity were lower than teachers' perceptions of equity it would be significantly associated with lower ratings of connectedness.

Together, these findings emphasize the importance of creating a school climate that both students and teachers perceive as equitable in order to promote positive outcomes for youth.

#### **METHODS**

#### Data

Data for the study came from the Maryland Safe and Supportive Schools (MDS3)

Climate Survey, which is a collaborative effort of the Maryland Department of Education, Johns Hopkins University, and Sheppard Pratt Health System aimed at improving school climate and student outcomes. <sup>26</sup> This self-report survey was administered online to 104 public middle and high schools in 13 Maryland public school districts. All schools volunteered to administer the MDS3 survey, which contains approximately 150 questions and takes approximately 20 minutes for students and school staff to complete. Data reported here were collected in 2014-2015 from 5,523 school staff and 59,218 students in grades 6-12 (see Table 1). The student sample was 51% female (N = 23,080), 40.9% were in middle school (N = 18,521), and 46.2% (N = 20,939) were white. School staff were mostly teachers (80.5%), female (71.2%), and white (79.6%). The data have been approved for analyses by the Institutional Review Board at the researchers' institutions.

#### **Procedure**

Students. The anonymous, online survey was administered using a waiver of active parental consent process and youth assent process; all participation was voluntary and anonymous. Letters were sent home to parents providing information about the survey. The survey was administered online in classrooms at participating schools by school staff following a written protocol. Specifically, schools surveyed the students from 18 language arts classrooms from the 49 middle schools and the students from 25 language arts classrooms from the 55 high

schools; 100% of the enrolled middle and high schools participated in the data collection.

Students not present in school on the day of survey administration were not provided an additional opportunity to participate, resulting in a response rate of 76%, including completions and partials.<sup>36</sup> Table 1 displays the descriptive statistics of the analytical sample.

*Staff*. School staff members were notified that they would have the opportunity to complete an anonymous survey regarding the school climate and their own experiences and perceptions. These data were collected through a secure, password-protected website. Staff provided passive consent since no identifiers were collected. The non-identifiable data from students and staff were obtained for analysis for the current paper.<sup>26</sup>

#### **Instruments**

Self-reported demographic characteristics were collected regarding staff members' and students' grade, age, sex, and race/ethnicity.

School Climate Survey<sup>9</sup> were used to assess student perceptions of school equity. Three items assessed perception of fair treatment by race, sex, and socioeconomic status; "all students are treated the same regardless of whether their parents are rich or poor." One item assessed cultural representativeness of educational materials; "school provides instructional materials that reflect my culture, ethnicity, and identity." Responses were given on a 4-point scale from 1 (strongly disagree) to 4 (strongly agree). Previous studies indicate adequate fit (CFI = .99, TLI = .99, RMSEA = .03, SRMR = .008),  $^{26}$  and items were then averaged such that higher scores indicate a more equitable culture ( $\alpha$  = .83).

Staff report of school equity. Five items adapted from the School Development School Climate Survey<sup>9</sup> and the California Healthy Kids Survey<sup>37</sup> were used to measure staff

perceptions of school equity. Two items assessed perception of fair treatment by race, sex, and socioeconomic status, "all students are treated the same regardless of whether their parents are rich or poor." One item assessed cultural representativeness of educational materials, "school provides instructional materials that reflect my culture, ethnicity, and identity." Two items assessed the school's appreciation and perceived respect for diversity, "school fosters an appreciation of student diversity and respect for each other." Responses were given on a 4-point scale from 1 (strongly disagree) to 4 (strongly agree;  $\alpha = .88$ ).

Congruence of Equity. We created one variable to assess agreement between students' and staff's perception of equity. We used at median split (low/high equity) based on individual student ratings of equity, that is, if a student's rating of equity was greater than the mean for all student ratings then it was considered high. Similarly, we averaged the staff ratings of equity for each school and did a median split. The congruence variable included values from 0 - 3, with 0 indicated high student and teacher ratings of equity, 1 indicating low student and low teacher ratings of equity, 2 indicating low student and high teacher ratings of equity and 3 indicating high student and low teacher rating of equity.

Connectedness. Three scales assessed a student's connection with the school environment, derived from the Baltimore City Safety Survey,<sup>38</sup> the California Healthy Kids Survey,<sup>19,39</sup> and the School Development School Climate Survey.<sup>9</sup> The whole school connectedness scale ( $\alpha = .85$ ) contained four items focused on general feelings about school including liking coming to school and taking pride in the school. Six items assessed connection with teachers ( $\alpha = .88$ ; "my teachers listen when I have something to say and students trust the teachers"). Student connectedness was assessed using five items which examined the perception that students helped, respected, liked, and trusted one another, as well as students' general

perception of belonging ( $\alpha$  = .88). Responses were provided on a 4-point scale from 1 (strongly disagree) to 4 (strongly agree).

## **Statistical Analysis**

*Missing Data.* The total sample included 57,296 middle and high school students. The total analytical sample included 45,279 students. We removed 7,109 students that were missing all the outcome variables. The majority of these students were also missing basic demographic variables, they did not complete the survey). We also excluded schools with few teacher ratings, N < 7. We assessed the pattern of missingness after excluding the 7,109 students (N = 50,187); students included in analytic sample (N = 45,279) were more likely to be female, older age, and white all p< 0.05). We assumed data were missing at random. Missing data for outcomes was accounted for by full information maximum likelihood (FIML) in Mplus. FIML is a widely accepted method to handle missing data and assumes data are missing at random.

Data analysis. Multilevel models assessing the relationship between connectedness and school equity were constructed using Mplus 7.3.<sup>40</sup> Multilevel models account for the interdependence of students nested within the same school. The first model assessed the relationship between staff demographics and school equity. Level one modeled the individual-level data including the staff's age, sex, race, and position (teacher versus other staff). Level two modeled the school-level data including the percentage of minority students, the percentage of students receiving free or reduce priced meals, type of school (middle vs high school), and total student population.

In the second model, the outcome of interest, *connectedness*, was modeled as a second order latent variable the whole-school, student, and teacher connectedness latent variables as indicators. Level one modeled the individual-level data and included the congruence variables

and controlled for demographics. Level two modeled the school-level data and controlled for the percentage of minority students, the percentage of students receiving free or reduce priced meals, type of school (middle vs high school), and total student population.

The model-fit indices we examined–root mean square error of approximation (RMSEA) values  $\leq$  .05, comparative fit index (CFI) values  $\geq$  .95, and Tucker-Lewis index (TLI) values  $\geq$  .90–generally represented good fit to the observed data.<sup>41</sup> Significant findings were reported for alpha levels below 0.05. Mplus 7.3 was used for all analyses.<sup>40</sup>

#### RESULTS

Model 1 was fit in Mplus to assess the association between staff demographics and perceptions of equity. The fit indices were acceptable (CFI/TFI = 0.989/0.986, RMSEA = 0.061). Staff that were older and also staff that were Caucasian had higher perceptions of equity (standardized estimate [SE] = 0.124, p < 0.001; SE = 0.052, p = 0.001; respectively). Female sex and being a teacher versus other staff member were both associated with lower perceptions of equity (SE = -0.050, p < 0.001; SEs = -0.066, p = 0.001; respectively). At the school-level, there was higher equity at middle schools and lower equity at schools with a higher percentage of minority students.

The fit indices for model 2 were acceptable (CFI/TFI = 0.981/0.979, RMSEA = 0.021). Level 1 regressed connectedness (second order factor; standardized factor loadings 0.865-0.928) on congruence of student and teacher equity controlling for sex, age, and race; high teacher and high student ratings (at the individual-level) of equity was the reference group. As compared to high teacher and high student ratings, there was lower connectedness among the group with low teacher, low student ratings of equity (SE = -0.449, p < 0.001) as well as the groups with high teacher, low student (SE = -0.417, p < 0.001) and low teacher, high student ratings of equity (SE

= -0.044, p = 0.002). In regards to level 2 included school-level variables, there was a negative relationship between percentage of minority students as well as percentage of students receiving free and reduced priced meals and connectedness (SE = -0.294, p = 0.015 and SE = -0.397, p = 0.001, respectively). There was higher connectedness at middle schools compared to high schools (SE = 0.432, p < 0.001).

## **DISCUSSION**

This study aimed to examine perceptions of school equity as rated by both students and teachers, and their association with connectedness. Results showed that students' perceptions of school equity were linked to their perceptions of whole school connectedness, connection to teachers, and student connectedness. The effects of school equity remained even after controlling for student grade, sex, and race. The findings shed light on the importance of school equity in understanding school climate.

Consistent with our hypothesis, students rated less favorable perceptions of equity as compared to teachers. This finding lends support to the social cognitive theory<sup>32</sup> by providing evidence that those with differing roles in the same physical space may have discrepant perceptions of it. Perhaps as a result of their increased power within the school environment, teachers generally rated school equity higher. It could be argued that teachers, as well as administrators, are the driving force of school climate.<sup>42</sup> In fact, in a 2012 position statement on "Racism, Prejudice and Discrimination," the National Association of School Psychologists<sup>43</sup> suggested that teachers are largely responsible for creating equitable and inclusive school environments.<sup>43</sup> As a result, it is likely that their perceptions of their own ability to create an equitable climate may always hold bias,<sup>44</sup> creating additional limitations in using teacher self-report to assess school and classroom equity.

The second goal of the study was to investigate if staff demographic characteristics would be associated with their perceptions of school equity. Findings showed that younger, non-White, female, and classroom teachers had lower perceptions of equity. Given that few studies have explored school staff perceptions of equity in public middle and high schools, this research question was exploratory. Our findings are somewhat consistent with studies of school equity among students. These studies often show that minority status is an important factor in how one perceives equity. 45,46 However, it is challenging to hypothesize why these school staff demographic characteristics would be associated with significantly lower perceptions of school equity. More research is needed to understand the factors influencing differential perceptions of the school environments. For example, in approximately 19% of schools, school staff rated school equity lower than students' rated. It is possible that school staff perceptions are influenced by factors like school leadership and the school district that may not be as relevant for students.

Consistent with our hypothesis, incongruence between students and teachers in perceptions of equity was associated with lower student-rated connectedness. Although we expected to observe this association in schools with high teacher and low student ratings of equity, we did not anticipate that schools with low teacher and high student ratings of equity would also have students who reported lower connectedness. These observed differences in teachers and students perceptions of the school environment may be a result of unaddressed need. For instance, a more nuanced exploration of different facets of connectedness, student-teacher, student-student, school connectedness, may shed additional light on these associations.

#### Limitations

Despite the many strengths of this study, there are a several limitations to note. Since students were not necessarily nested in the classrooms of participating teachers, we are unable to

draw conclusions about classroom-level incongruence in perceptions of equity. Given students in these grade levels encounter multiple teachers each day, we are unable to determine which teachers may be contributing to an inequitable school climate. In addition, although the equity scale captured perceptions of fairness across race, socioeconomic class and sex, there are other components of school equity that would have contributed to a more comprehensive scale. For example, research shows that sexual minority students and students with nonconforming gender identities also experience bias in school environments. <sup>47</sup> Future studies should consider how other diverse students perceive equity and its association to school connectedness. Finally, due to the large-scale nature of study, we were only able to assess self-reported equity using a cross-sectional design.

## **Conclusions**

This study is unique in its focus on student as well as staff perceptions of school equity.

The findings suggest that staff perceptions of school equity are often higher than students and incongruence in perceptions may have a negative impact on students' connection to school.

Given the multitude of studies that note the importance of connectedness to student success, it is crucial that steps are taken to improve students' perceptions of equity.

#### IMPLICATIONS FOR SCHOOL HEALTH

In their effort to create a safe and welcoming school climate for students, educators must consider how diverse students are experiencing the environment. The Every Student Succeeds Act (ESSA; P.L. 114-95), signed into law in 2015, requires schools to incorporate some nonacademic factors into their accountability systems. As a result, many states administer yearly school climate surveys to better understand the factors of the school environment that are

contributing to student success. Findings from the current study support the following practical implications for understanding and addressing school equity:

- School staff perceptions of equity are not always congruent with the perceptions of students in the school. School-based efforts to build connectedness must address feelings of fairness and equity among students.
- Even among teachers in a single school, perceptions of school equity may differ by teacher demographics. Administrators should not assume that all teachers' experiences and perceptions are the same.
- Additional attention should be paid to the factors influencing school staff perceptions of equity. It would be challenging, perhaps impossible, for school staff to promote a climate of equity for students, if they feel that the school district and administrators are treating them unfairly. It is important that school districts understand and address the wellbeing of school staff related to equity and inclusion.
- Administrators and school staff should use school climate survey administration as an opportunity to hear from diverse students how they are connecting to other students and how they feel they are being treated in the school. If specific student groups have differential perceptions of school climate when compared to the majority, it is then the school administrators and staff responsibility to take steps to foster a more inclusive environment. Few several programs currently exist that seek to improve school equity and teacher culturally responsive practices and even fewer have been rigorously tested or demonstrated efficacy, <sup>48,49</sup> given the growing racial and ethnic diversity of students in schools, more applied research developing and testing such interventions is sorely needed.

# **Human Subjects Approval Statement**

The nonidentifiable data were obtained for analysis and approved, #2254, by the University of Virginia institutional review board.

# **Conflict of Interest Disclosure Statement**

All authors of this article declare they have no conflicts of interest.

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Table 1 Student, Teacher and School Demographics

	Students	Teachers
	(N = 59,218)	(N = 5,523)
Individual-level	n (%)	n (%)
Female	23080 (51.0)	3656 (71.2)
Grade		
$6^{ ext{th}}$	6879 (15.2)	
$7^{ m th}$	6212 (13.7)	
8 <sup>th</sup>	5430 (12.0)	
9 <sup>th</sup>	7764 (17.1)	
$10^{ m th}$	7183 (15.9)	
11 <sup>th</sup>	6322 (14.0	
$12^{\text{th}}$	5489 (12.1)	
Race	, ,	
White	20939 (46.2)	4079 (79.6)
Black	12124 (26.8)	573 (11.2)
Hispanic	4691 (10.4)	124 (2.4)
Perception of Equity	` ,	` '
Student are treated the same, regardless of		
whether parents are rich or poor	29484 (65.1)	3644 (76.3)*
School provides instructional materials that		
reflect my culture, ethnicity, and identity	26932 (59.4)	3687 (77.3)*
Students of all races are treated the same	29243 (64.6)	
Boys and girls are treated equally well	31588 (69.7)	
School-level School-level	Mean (SD)	
Percentage Minority	53.1 (25.3)	
Percentage Free or Reduced Cost Meals	39.5 (16.8)	
-	1062.1	
Total Enrollment	(463.1)	
High School	48 (60.8)	

<sup>\*</sup>Statistically significant difference in perceptions of equity for students and staff (p < .05)

**Table 2 Associations Between Teacher Demographics and Perceptions of Equity** 

	Standardized Estimate†	р
Individual-level		
Female	-0.050	0.001
White	0.124	< 0.001
Age	0.052	0.001
Teacher	-0.066	< 0.001
School-level		
Percentage Minority	0.003	0.982
Percentage FARMS	-0.307	0.029
Middle School	0.483	< 0.001
Total Enrollment	0.156	0.346

FARMS = Free or Reduced Cost Meals; †Standardized Estimates;

CFI/TFI = 0.989/0.986, RMSEA = 0.061

Table 3 Associations of student-teacher congruence in perceived equity and connectedness

	Standardized Estimate†	р
Individual-level		
Female	-0.066	< 0.001
Grade	-0.144	< 0.001
White	0.028	< 0.001
Equity (high/high reference)		
Low Student, Low Teacher	-0.449	< 0.001
Low Student, High Teacher	-0.417	< 0.001
High student, Low teacher	-0.044	0.002
School-level		
Percentage Minority	-0.294	0.015
•		
Percentage FARMS	-0.397	0.001
Middle School	0.432	< 0.001
Total Enrollment	-0.061	0.624

FARMS = Free or Reduced Cost Meals; †Standardized Estimates;

CFI/TFI = 0.98/0.98; RMSEA = 0.021