

Contextual Factors in Educators' Discrepant Perceptions of School Violence
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ABSTRACT

Using data from the U.S. Department of Education's 2003-2004 Schools and Staffing Survey (SASS), we examine how the discrepancy between teachers' and administrators' perceptions of several school violence indicators (such as frequency of physical conflicts, bullying, racial tensions, etc) are related to teacher and school level characteristics. We calculate the degree of discrepancy between teacher and administrator perceptions, and find that both teacher demographics and school characteristics have significant, and sometimes moderate relationships to discrepancy for poverty (ES=0.27), schoolwide collegiality (ES= -0.24), and enrollment (ES=0.11). We discuss the implications of these analyses for evaluators and the school-based violence prevention programs they examine.

PRELIMINARY ANALYSIS. Results in this paper should not be published or presented without permission of the author.

INTRODUCTION

Evaluators have conducted several inroads toward understanding and improving violence prevention programs (e.g. Black and Jackson, 2007; Wilson, 2004). In doing so, they often turn to school level informants, such as principals, to understand the nature and consequences of school violence. While these types of informants present practical advantages to data collection – they are much easier to sample than large numbers of teachers or students – they might often have views very different than staff who work “in the trenches.” In this analysis we examine the factors related to principals’ and teachers’ discrepant perceptions of school violence to enhance evaluators’ understanding of either type of informant.

Evaluators’ attention to violence prevention programs is part of a response to the seriousness of school violence – a “substantial public health problem” (Hahn, et al., 2007, p.S114) and an empirically documented correlate of student achievement (e.g. Uline, 2008). While earlier studies have increased our understanding of school violence and its prevention, questions about how different types of school-based informants perceive school violence has not been investigated thoroughly. The implications of such an analysis may be particularly important to state level accountability systems that rely on summary reporting of school violence by administrators, such as in Pennsylvania (Pennsylvania Department of Education, 2008). Furthermore, successful policymaking also rests on understanding any discord in teacher-principal perceptions of the issues that policies are intended to address.

In this paper we explore individual and school level factors related to discrepant perceptions of school violence using a nationally representative sample of public school teachers and principals. Our purpose is to identify characteristics that are associated with higher and lower levels of perception “discrepancy” about school violence. We are especially interested in school effects – those variables that describe how school climate relates to discrepant perceptions. How, for instance, are school characteristics related to teachers’ agreement with principals on school violence issues? Our intent in answering questions like these is to provide evaluators and policymakers with information that aids interpretations of school violence reports. Oftentimes evaluators (or policymakers) are pragmatic and must choose higher level units of analysis (e.g. principals) because lower level units of analysis (e.g. teachers) require substantially more time and logistical effort to assess. Understanding more precisely how principal and teacher perceptions of school violence vary can inform evaluators who use either level of unit.

Beyond these immediate practical issues, standard evaluation practice calls for prevention researchers and evaluators to carefully consider issues of measurement, outcomes validity, and the expected degree of change (Hallford, Borntrager, & Davis, 2006). Furthermore, Jaycox et al. (2007), wrote of assessing effectiveness in terms of the role school effects: “It is increasingly recognized that interventions must examine ecological factors such as the socioeconomic and cultural environment in which the targets of

interventions (individuals) are embedded.” (Jaycox, et al, 2007, p. 322). Both of these methodological concerns frame our work.

Prevention scientists advocate for programs that produce sustainable change by targeting more than one type of problem behavior at multiple levels of intervention. As programs offer these standards they must in turn become more sophisticated, and address multiple behaviors and groups, in turn requiring evaluators to respond with more nuanced perspectives on their data. Our analysis highlights such nuances and identifies contexts that impact subjects' perceptions of school climate and violence, results which assist evaluators' efforts to enhance program fidelity and efficacy, student achievement, and the well being of students and teachers within schools (Freiberg, 1998).

Pursuant to this more rigorous and complex context, our study's direct measurement of principals' and teachers' agreement on multiple school violence indicators informs evaluators about the ways, and to what extent, these two key informant types view school climate. By elaborating on the factors that impact principals' and teachers' responses, evaluators and program staff can improve their understanding of data quality and how to interpret them.

PREVIOUS RESEARCH

The broadest studies of school violence include nationally representative descriptions of the types and incidence of school violence using Federal datasets, such as Dinkes, Cataldi and Lin-Kelly's (2007) analysis of national school violence data. Another area of research concerns teacher-principal agreement, such as Bingham et al. (1993), who explored rating discrepancies between teachers and principals on measures of overall school quality, and Searles and Judeki (1987) who examined perception differences in ratings of science teacher quality. Other studies focus on perceptions of one respondent group, such as students' perceptions of school climate (Koth, 2008). Our study is at the intersection of these two areas of research.

We located one study that specifically examined teacher and principal perception agreement on school violence using earlier SASS datasets. MacNeil and Prater (undated) compared the distribution of teacher and principal responses on several violence issues. While the authors found differences between these groups, they examined only the rank order of issues that had more or less “seriousness” as indicated by respondents. School or teacher factors associated with these differences were not explored.

Research Questions

Our study focuses on a broad question: “How do teacher and organizational characteristics relate to teachers' agreement with principals on school violence issues?” To approach this topic, we begin with questions about simple mean differences in perception (we term this “discrepancy”) and move to multivariate considerations of explanatory factors of these differences. Several subquestions we ask are:

1. How does average discrepancy vary from school to school?

2. What role do teachers' demographic characteristics play in explaining variance in discrepant perceptions?
3. What role do school climate variables, such as enrollment and collegiality, play in explaining average discrepancy between schools?

METHODS

We analyze survey data from the U.S. Department of Education's 2003-04 Schools and Staffing Survey (SASS) Teacher Questionnaire, Principal Questionnaire and School Questionnaire to address our research questions. The SASS variables related to this study come from a subset of questions that ask teachers and principals to rate their perceptions of the frequency of thirteen (13) school violence issues, including physical conflict, bullying, theft, and other violence related matters (see Figure 1). Principals respond to an identical set of perception questions in a separate questionnaire. Both datasets are linkable with a unique ID, permitting for analysis of perception discrepancy. The SASS also includes a wide range of data on many other teacher, principal and school characteristics.¹

Analytic Sample

We draw our analytic sample from over 42,000 public school teachers who completed questionnaires in the full SASS sample. The analytic sample derives from several methodological and substantive inclusion and exclusion criteria:

- **Teacher File:** we select regular (not emergency certified) teachers working at least half-time, including itinerant and long-terms substitutes. We also choose teachers who were sampled in schools with at least four other teachers to insure a minimal level of input on school violence issues. The final analytic sample included teachers who worked in schools with a range of 4 to 20 teachers sampled per school, with a mean of 7.8 teachers sampled.
- **School File:** we focus on regular public (not charter) secondary schools that operated full-day programs and lacked any admissions criteria. About 3,600 schools meet these criteria.
- **Principal File:** we included data from a survey of principals from the schools selected for this study.
- **Multilevel File:** we create a linked HMLM file of teachers and schools. Due to missing data, the final HLM file contained 20,431 teachers and 2,956 schools. Appendix A provides descriptive statistics of this file.

Measures

Our primary unit of analysis is a measure of teacher-principal perception discrepancy (Table 1 provides a list of all composite variables in this study). To compute the discrepancy measure, we first reverse coded the original scale so that higher ratings were corresponded with more perceived violence. Next we added each teacher's 13 perception scores (a simple mathematical sum across all perception scores). We sum principal scores

¹ Additional information about SASS is available at www.nces.ed.gov/surveys/sass

in the same way.² When the teacher and principal files are linked, we subtract the principal score from the mean teacher score, and take the absolute value of the result:

$$\text{DISCREPANCY} = \text{ABS}(\text{Mean Teacher Perception Sum}) - (\text{Principal Perception Sum})$$

The initial distribution of DISCREPANCY had a skew statistic of 1.32. To avoid violation of statistical tests used in our subsequent analyses, we took the square root of the raw score to correct for skew. This procedure reduced skewness by over 80 percent and lowered kurtosis as well. The resulting distribution and measures of central tendency are shown in Figure 2. Table 2 shows the final descriptive statistics for DISCREPANCY. DISCREPANCY is interpreted as an aggregated measure of teacher and principal agreement on schoolwide violence perception. Negative values on this standardized variable are associated with below average discrepancy between teachers and principals, with positive values associated with above average discrepancy, regardless of whether teachers or principals perceived more violence than the other. Since the measure is a z-score, a value of 0.5, for instance, indicates a half-standard deviation difference above the mean discrepancy score.

² Internal reliability statistics (Cronbach's alpha) for all thirteen measures was very high, at .89, lending support to this grouping of perception variables.

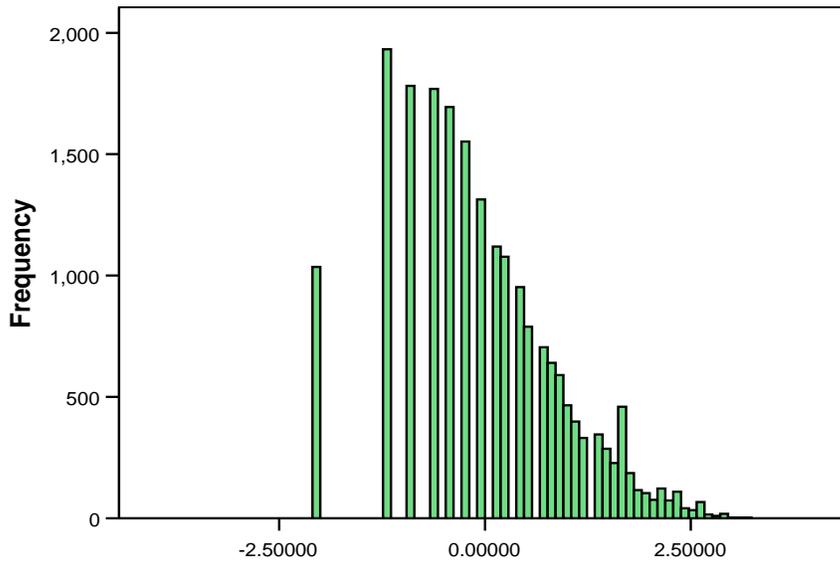
Figure 1: SASS Teacher Questionnaire – Violence Perception Items

64. To the best of your knowledge how often do the following types of problems occur with students at this school?

Mark (X) ONE box on each line.

		Happens daily	Happens at least once a week	Happens at least once a month	Happens on occasion	Never happens
a. Physical conflicts among students	0351	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. Robbery or theft	0352	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. Vandalism	0353	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
d. Use of alcohol	0354	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
e. Use of illegal drugs	0355	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
f. Possession of weapons	0356	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
g. Physical abuse of teachers	0357	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
h. Student racial tensions	0358	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
i. Student bullying	0359	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
j. Student verbal abuse of teachers	0360	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
k. Widespread disorder in classrooms	0361	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
l. Student acts of disrespect for teachers	0362	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
m. Gang activities	0363	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Figure 2: Distribution of DISCREPANCY.



Comparison of Analytic and Non-analytic Samples

A comparison of the full and analytic files helps to discern whether our inclusion and exclusion criteria bias the probability sample originally designed by the U.S. Department of Education. Table 3 compares characteristics of the full sample of teachers (n=43,244) to our analytic sample (n=20,441) of teachers on both teacher and school characteristics. Teachers in the analytic file are quite comparable to teachers in the full sample and out-of-sample files, although teachers in the full sample have a slightly higher mean score on DISCREPANCY than teachers in the analytic and non-analytic sample. Using Cohen's *d*, an effect size measure, we computed a 41 percent difference between the full file and analytic file on the mean DISCREPANCY statistic, considered, in rough terms, a moderate effect (Cohen, 1998).

In terms of teacher characteristics, all three groups have essentially the same mean age, ranging from 42.0 years to 42.5 years. Teachers are similar in terms of race and ethnicity as well, with all groups being roughly 88-90 percent white and 5-6 percent Hispanic ethnicity. Teachers in the analytic file, however, more likely to be male (reflecting our focus on secondary schools) although teachers in each file tend to have very similar years of prior teaching experience.

In terms of school characteristics, the analytical file is more likely to include suburban schools and less likely to include urban schools, although not by large degrees. School enrollment in the analytic file is substantially higher than the other files, however, this is an artifact of our focus on secondary schools, which tend to be larger overall.

Analytic Approach

Our analyses have two basic forms: comparison of mean differences and multivariate analyses on DISCREPANCY. We use ANOVA and multilevel regression models, respectively, to make these analyses.

Descriptives and ANOVA

Our first step for this study is to examine how DISCREPANCY varies for teacher and school characteristics. We use standard tests of mean differences (ANOVA) to make group comparisons. These analyses help us refine our approach for the multilevel analyses described next.

Multilevel models.

We use Hierarchical Linear Models (HLM) to examine multilevel relationships between teacher-principal DISCREPANCY and several school-level "ecological" variables that may affect mean DISCREPANCY across schools. Appendix A provides information about our HLM analysis file. Fewer teacher and school records appear in this file given that not all principals or schools submitted data for corresponding teacher respondents.

Multilevel models permit an examination of how variables that are measured at different levels relate to one another without producing bias in the estimates that would normally occur without multilevel models. For instance, one particular problem in using data at

different levels is that error in ordinary regression models is grouped into one term. However, it is clear that measurement error may vary among teachers and schools. Multilevel models address this issue, and several others (Bryk and Raudenbush, 1992).

RESULTS

Generally, we seek to identify individual (teacher) and organizational (school) characteristics related to greater and lesser DISCREPANCY scores. We first present analyses of mean differences in DISCREPANCY and then follow with regression models to assess the unique contribution of several teacher and school factors.

Overall Discrepancy

Table 2 presents descriptive statistics for the raw and transformed measures of DISCREPANCY. Because the raw score is composed of the summed differences of 13 variables, each measured on a five point scale, the total possible range of scores was 65 points. The actual measured range was 41 points. On average, teachers and principals had a 7.7 point difference. This difference could have taken any number of possible combinations of disagreement, such as 1-point differences on roughly seven different items, or roughly three 2-point differences and one 1-point difference. Because of the variety of differences possible, we interpret the DISCREPANCY statistic as an aggregate measure of teacher-principal perception difference of school violence, writ large.

Bivariate Relationships to DISCREPANCY

Our first approach is to examine bivariate distributions of DISCREPANCY on individual and organizational variables. These analyses inform us about important group differences as well as provide guidance for subsequent multivariate analyses.

Table 4 presents bivariate distributions of DISCREPANCY. The far left column presents teacher, principal and school characteristics of interest, the second column includes the number of records for each value of the specified analytic variable. The mean DISCREPANCY value for each variable value is presented next, followed by a significance statistic. Significance values less than or equal to $p=.05$ are mean DISCREPANCY differences occurring for reasons other than chance – namely teacher and school factors.

Teacher Differences

We examine three teacher characteristics – sex, race and age. For some teacher characteristics, differences in violence perceptions are not evident. For instance, teacher race and sex seem unrelated to discrepancy in perception ($p>.05$). However, teachers' age (differentiated in terms of teachers older than 50 or not) was important in distinguishing the magnitude of agreement or disagreement between teachers and principals. Older teachers (mean=-.039) had average perception ratings that were more disparate with their principals than younger teachers (mean=.019) – an effect size of about 6 percent.

School Differences

Several school characteristics are related to perception differences between teachers and principals. We examine more school characteristics than teacher characteristics because our emphasis is on the role of school climate in conditioning discrepant views. Several independent variables are presented in quartiles.

First, school size is clearly related to the magnitude of agreement between teachers and principals. Among teachers in larger (above average enrollment) schools, the mean DICSREPANCY rating was .162, whereas in smaller schools it was -.103 (about 26 percent of a SD difference). Schools with higher levels of poverty are more likely to have greater perception discrepancies than lower poverty schools; a 0.22 difference between the top and bottom quartile. School location is also related to the magnitude of agreement, with urban schools having greater levels of discrepancy than non-urban schools – in fact, its score difference, 0.32, constitutes the second largest effect size thus far.

Additionally, we examine school security levels, principals' prior teaching experience, school suspensions and the presence of violence prevention programs to characterize school climate. We also include a measure of teachers' collegiality. While this latter construct is more abstract – making it more difficult for evaluators to assess when working with schools – we include it here because its importance in differentiating DISCREPANCY. While security, prior teaching experience, suspensions and violence prevention have significant roles, they have small effects. In contrast, teachers' schoolwide collegiality has the largest role in differentiating teacher and principal perceptions, with a 35 percent effect size between the highest and lowest levels of collegiality.

Multivariate Relationships to DISCREPANCY

Thus far we have examined how single variables have related to DISCREPANCY. In this section, we explore multivariate relationships – that is, how several independent variables at both the teacher and school levels relate *simultaneously* with discrepancy perception. This approach allows us to control for several factors at once – providing estimates of these relationships adjusted in terms of teacher and school characteristics. We use a variety of multilevel regression models (Table 5) for this purpose. We begin with a simple model that deals only with mean schoolwide DISCREPANCY, and add several teacher and school level variables as predictors.

Each of the *teacher* level variables are group mean centered to permit for clear interpretation of the average DISCREPANCY score at the school level. (Bryk and Raudenbush, 2001), while *school* level predictors (such as school location and enrollment) are grand mean centered (Arnold, 1992). These models also assume that the mean values of teacher characteristics are the same in each school, and thus have the same explanatory role in each school (we discuss this issue further, below).

Model 1: How does DISCREPANCY vary across schools?

The first model (Model 1) simply examines whether and to what extent the mean DISCREPANCY score varies across schools. This examination is fundamental to multilevel models, as their purpose is to account between school variation in the outcome measure. Thus, the primary unit of analysis in Model 1 is mean DISCREPANCY itself. Table 5 presents the estimated mean discrepancy value (-.059). The random effect in this model also indicates to what extent this discrepancy value significantly varies between schools (coeff.=0.146, p.=000). Based on the ratio of this variance component to the remaining teacher level variance, R , the total proportion of DISCREPANCY variance occurring between schools is roughly 15 percent. This amount of between school variation is substantial enough to warrant further analysis of between school discrepancy, although the overwhelming majority of variance remains at the teacher level ($R=.826$).

Model 1 also presents important information about the reliability of our DISCREPANCY estimates with the lambda (λ) statistic. Model 1 indicates $\lambda=.533$, reflecting the extent to which the DISCREPANCY mean in each school is reliable. Higher lambda values may be suppressed by the relatively low number of teachers sampled in each school (mean = 7.8 teachers).

Model 2: What role do teacher characteristics play?

Model 2 introduces teachers' demographic characteristics at level-1: teachers' age, race and sex. Tests of significance indicate that only age and race are significant correlates of DISCREPANCY, whereas teacher sex is not. While in Model 1 DISCREPANCY represented the total average discrepancy score across schools, the inclusion of teacher characteristics changes the meaning of the intercept to represent non-white males of average age.

In terms of each characteristic, teacher age, while significantly, negatively correlated with DISCREPANCY, has a rather small relationship to discrepancy (about half a percent of a standard deviation for *each year* increase in teacher age). In contrast, teacher race has a larger role, positively associated with roughly 30 percent of a standard deviation difference in DISCREPANCY between white and non-white teachers. The positive race coefficient, interpreted as the gap between discrepancy scores of white and non-white teachers, also indicates that white teachers have greater amounts of discrepancy than their non-white counterparts.³ However, if the aggregated mean proportion of white teachers is included as a level-2 predictor, such that schools are not treated as if they have the same mean race proportion (see Arnold, 1992, p. 78), the race coefficient reduces by 50 percent to about 0.15. This latter, and lower, coefficient is a *more accurate measure* of the "race gap" in discrepancy scores – a rather small difference. Including an aggregated age variable at level 2 does *not* affect the original age coefficient, however. Oddly, teacher sex plays no significant role in discrepant perceptions.

³ Since race and sex are dummy coded variables, their coefficients represent the "gap" between white and non-white, and female and not-female, teachers' discrepancy scores.

Model 3: What role do school characteristics play?

Model 3 adds eight school-level predictors to assess whether each has a relationship to average teacher-principal DISCREPANCY. None of the level-1 variance components for the independent variables are permitted to vary at level- 2 because we assume that the relationship between teachers' demographic characteristics and average discrepancy is constant across schools.⁴

Five of the eight variables have a significant relationship to variation in DISCREPANCY across schools. The most influential predictor in this model is the percentage of students approved for free or reduced price lunch; a proxy measure of schoolwide poverty. For each standard deviation increase in poverty rates (a standardized zscore), there is a 27 percent *increase* in perception discrepancies. Assuming that about 15 percent of schools' poverty rates are more than one standard deviation above the mean (given the probability under a normal curve), evaluators are likely to encounter many schools that have teachers and principals with considerably discrepant views on school violence.

The second most influential predictor is schoolwide teacher collegiality. While its magnitude is similar to schoolwide poverty, a unit increase in schoolwide collegiality is associated with a 24 percent *decrease* in DISCREPANCY. Teachers' collective cooperation, value sharing and coordinated instruction (the individual variables used to create this composite variables) together appear to have an important ameliorative role in bridging teachers' "perception gaps" with their administrators, perhaps as a result of clearer school missions that might result from enhanced collegiality or similar "professional communities" in schools (McLaughlin and Talbert, 2005).

Because collegiality is an abstract measure, evaluators might be hard pressed to apply information about it in real world settings. Thus readers may find it of interest to know how other level-2 coefficients change if collegiality is removed from Model 3. In this case, the other coefficients predicting mean DISCREPANCY remain very similar to those present in Model 3, with the exception of CITY. When collegiality is removed, CITY has a larger role (0.204), perhaps an indication that teachers in urban locations are in greater discord with their administrators when average teacher collegiality is absent. CITY's role is also surprising given its distribution; only 6 percent of schools in the sample are of this type.

School enrollment also has a small role to play in explaining DISCREPANCY. A standard deviation increase in enrollment is associated with roughly an 11 percent increase in discrepancy. Although small on average, enrollment's effect in very large schools could play an important role in making sense of school violence issues. Finally, the number of suspensions and the number of security measures in a school have significant roles, but not substantial ones, given that each is associated with less than three percent of a standard deviation difference in teacher-principal disagreement. Neither principals' prior teaching experience (in years) nor the availability of a violence prevention program are significant.

⁴ Future analyses will explore the variance in these relationships per different organizational characteristics.

Finally, we explored several different interactions between these level-2 predictors. The interactions enabled us to determine if, for instance, collegiality's role was larger in schools with higher enrollments. However, each interaction we tested did not have significant roles, including interactions between collegiality and CITY, collegiality and enrollment, and collegiality and poverty. Interactions between poverty and CITY were also not significant. Thus, we cannot assume that the school climate variables have any additive effect with one another

Model 3 also indicates that overall, these school variables significantly explain variation in mean DISCREPANCY. The variance components for Model 3 (τ and R) constitute a 30 percent reduction in intra-class correlation (ICC) compared to Model 1. Thus, aside from the specific roles each school level variable has to mean DISCREPANCY, the entire model itself represents a significant description of how schools differ on teacher-principal perceptions.

Other Models

We explored also a “means- and slopes- as-outcomes” model (Bryk and Raudenbush, 1992) to predict not only *mean* discrepancy, but whether the level-2 variables related to the slope (coefficient) for teacher race. None of the school level variables (from Model 3) had significant effects, however. One possible explanation for this is the unbalanced distribution of teachers on this variable – the absence of variation on this dummy coded variable is difficult to model from the start.

DISCUSSION

The key finding is not a surprising one: teachers and principals have rather different perspectives on school violence. What is not so obvious is the extent to which teacher and school characteristics relate to differences in violence perception. Bearing in mind the limitations of these analyses (below), evaluators should consider these individual and contextual differences as they continue to assess violence prevention programs. In particular:

- Teachers' demographic characteristics play a small role in whether discrepant perceptions about school violence exist with principals. Of three variables (sex, age and race), race was the most correlated variable to discrepant perceptions, although its effect was small ($ES=0.15$). Although we did not examine the role of teacher characteristics extensively in this paper, preliminary analyses indicated that school climate variables do have a relationship to at least one teacher characteristic.
- Evaluators should be especially cautious in assessing higher-poverty or lower faculty morale schools. Understanding the effects of violence prevention programs in these schools could be confusing, as conflicting results might appear between teachers and principals on the benefits of a violence prevention program.

Triangulating data among different informants in such schools could be particularly challenging!

- An alternate interpretation of DISCREPANCY is as a rough gauge of “readiness” to implement violence prevention programs. Inhibited program implementation may occur where greater discord between teacher and principals exists because these important actors might not agree on the very problems violence prevention programs are intended to solve. Based on the overall DISCREPANCY distribution, roughly fifteen percent of all teachers have +1SD teacher-principal discrepancies. Such a difference corresponds to at least a fourteen point difference (Table 2: $7.68+6.64=14$) in rated indicators of violence perception. Whether or not such differences are across several violence issues, or are concentrated into a smaller number of them, schools at this end of the DISCREPANCY continuum may lack the “buy in” (Kincaid, Blase, Childs and Wallace, 2007) that evaluators find necessary for successful program implementation.
- While we focused on concrete school level variables, the largest relationship we found was somewhat abstract – between DISCREPANCY and teachers’ collegiality. Although difficult for evaluators to “see,” it is not surprising that greater amounts of teachers’ collegiality corresponds with lower discrepancy levels. These results are not surprising given the extensive literature documenting the importance of collegiality (e.g. McLaughlin & Talbert, 2001).
- The non-significant relationship between DISCREPANCY and violence prevention programs might signal the absence of buy-in among staff to those programs, suggesting they are at best official mandates, but do little to rally faculty to respond to the issues they are intended to address.

Limitations and Future Research

This study is based on a national probability sample of teachers across the United States. While the original SASS sample is designed to represent all public school teachers, our analytic sample is slightly different than the full sample (as discussed above). Also, our models do not delve into the complexity of teacher or principal perceptions on school violence. More complex descriptive analyses would help elucidate differences between teacher and principal views. For instance, are perception differences smaller if teachers are *matched* to principals in terms of professional or demographic characteristics? These and other descriptive analyses could uncover interesting lessons for evaluation practice. Finally, although we have accounted for several significant predictors of higher and lower discrepancy, our regression models do not account for all variance in teacher-principal discrepancy.

TABLES

Table 1: Definitions of Key Composite Variables

DISCREPANCY	a measure teacher-principal perception discrepancy. To compute the discrepancy measure, we first add each teacher's 13 perception scores (a simple mathematical sum across all perception scores). Principal scores are summed in the same way. When the teacher and principal files are linked, we subtract the principal score from the teacher score.
White only	A dichotomous variable equal to 1 if a teacher selected only "white" in a multiple response item measuring race. All other teachers were coded 0, not white only.
Female	A dichotomous variable equal to 1 if a teacher selected "female" in a question measuring teacher sex.
Collegiality	The sum of three variables measuring "colleagues share beliefs and values," "great deal of cooperative effort," and "conscious effort to coordinate instruction." Cronbach alpha for these measures was .58, although the small number of items constrains a higher alpha value. Composite values range from 3 to 12 with a mean of 9.5. The final measure is a z-score.
Security	Sum of 13 different security measures used in a school, such as strict dress, codes, use of security cameras, use of random locker searchers, etc. Final composite variable ranges from 0 to 12 with a mean of 4.7 measures used across schools. The final measure is a z-score.
Percent lunch	The number of students approved for a free or reduced price lunch, divided by the total school enrollment.
Violence prevention program	A dichotomous dummy variable equal to 1 when a school has <i>both</i> a violence prevention program <i>and</i> a procedure in place to assess it.
Suspensions	The total number of suspensions reported by the school principal in 2002-03. The final measure is a z-score.
CITY	A dichotomous variable equal to 1 if school was located in a "large city" as defined in the 2003 Census location measure.

Table 2: Characteristics of DISCREPANCY (n=20,441)

	Raw Score	Transformed Z-Score
Mean	7.68	.000
Std. Deviation	6.64	1.00
Skewness	1.29	.18
Kurtosis	1.51	-.216
Minimum	0	-2.04
Maximum	41	3.20

Source: US Department of Education, 2003-04 Schools and Staffing Survey

Note: DISCREPANCY raw scores were transformed with the square root.

Table 3: Comparison of Analytic and Full Sample Files

Variable	Full Sample n=43,244	Analytic Sample n=20,441	Non-analytic Sample n=22,803
Dependent Variable			
Teacher Violence Perception (unstandardized)	27.8 (9.2)	31.6 (9.2)	25.8 (8.5)
Teacher Characteristics			
Mean Age	42.5 (11.10)	42.0 (11.0)	42.0 (11.0)
Percent white only	88.5 (na)	90.3 (na)	87.6 (na)
Percent Hispanic	6.2 (na)	5.0 (na)	6.6 (na)
Percent over age 50	33.0 (na)	32.9 (na)	33.0 (na)
Percent female	75.0 (na)	61.5 (na)	81.9 (na)
Mean Years Teaching Experience	14.2 (10.2)	14 (10.0)	14 (10.0)
School Characteristics			
Mean Enrollment	804.5 (606.9)	1144 (736.0)	633 (439.0)
Percent Urban	28 (na)	23.8 (na)	31.0 (na)
Percent Suburban	42.4 (na)	55.6 (na)	50.8 (na)
Percent Rural	19.0 (na)	20.6 (na)	18.1 (na)

Source: US Department of Education, 2003-04 Schools and Staffing Survey

Note: mean percentages for categorical variables (e.g. white only; over 50) are calculated using dummy variables; in these cases standard deviations are not computed.

Table 4: Mean ZDISCREPANCY Values for Teacher, Principal and School Level Characteristics

	Mean	Sig. p-value
Teacher Characteristics		
White only	-.003	.228
Not white only	.026	
Female	-.007	.501
Not female	.006	
Older	-.039	.000
Not older	.019	
School Characteristics		
Above Average Enrollment	.162	.000
Below Average Enrollment	-.103	
Free Lunch Bottom 4tile	-.087	.000
Second Quartile	-.040	
Third Quartile	.055	
Free Lunch Top 4tile	.132	
Urban	.248	.000
Not Urban	-.075	
Bottom Quartile Security Measures	-.077	.000
Second	-.006	
Third	.079	
Top Quartile Security Measures	.096	
Bottom Quartile Yrs Principal Tchg Experience	.012	.021
2 nd	-.037	
Third	.014	
Top quartile	.012	
Number Suspensions 1 st "third"	-.098	.000
2 nd third	.067	
Top third	.027	
Violence Prevention Program In Place	.057	.000
No Violence Prevention Program	-.034	
Collegiality 1 st Quartile	.174	.000
2 nd	.067	
3 rd	-.058	
Top Quartile	-.182	

Source: US Department of Education, 2003-04 Schools and Staffing Survey

Table 5: Multilevel Models for DISCREPANCY

	Model 1		Model 2		Model 3	
	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Fixed Effects						
Mean Discrepancy γ_{00}	-.059	.000	-.065	.000	-.065	.000
γ_{01} Enrollment (zscore)					.113	.000
γ_{02} Percent Lunch					.270	.000
γ_{03} City					.172	.006
γ_{04} Collegiality					-.240	.000
γ_{05} # Suspensions					.002	.009
γ_{06} # Security Msrs.					.016	.010
γ_{07} Prin Tchg Exper.					-.000	.792
γ_{08} Viol Prvtn Program					.023	.354
Age γ_{10}			-.005	.000	-.005	.000
White γ_{20}			†.300	.000	.280	.000
Female γ_{30}			.032	.156	.032	.163
Random Effects						
U0 (mean discrepancy) (τ)	0.146	.000	.145	.000	.096	.000
R	0.826		.819		.819	
Lambda	.556		.555		.454	
ICC	15.0%				10.5%	
% ICC Change w/ Model 1					~30%	

Source: US Department of Education Schools and Staffing Survey. 2003-04

Note: Discrepancy is a standardized z-score. All level-1 variables are group mean centered, level-2 variables are grand mean centered except city status. Adjusted SASS weights used at level 1 and 2.

† When aggregate mean values from each school are included as level-2 predictors, this coefficient is equal to 0.15. This smaller relationship is a more accurate measure of the difference between white and non-white teachers on DISCREPANCY.

APPENDIX A – HLM ANALYSIS FILE

TEACHER LEVEL DESCRIPTIVE STATISTICS

VARIABLE NAME	N	MEAN	SD	MINIMUM	MAXIMUM
ZDISCREP	20431	-0.00	1.00	-2.04	3.20
TOTEXPER	20431	14.68	10.39	1.00	54.00
AGE_T	20431	42.73	10.97	21.00	93.00
WHITE	20431	0.90	0.30	0.00	1.00
FEMALE	20431	0.60	0.49	0.00	1.00

SCHOOL LEVEL DESCRIPTIVE STATISTICS

VARIABLE NAME	N	MEAN	SD	MINIMUM	MAXIMUM
Enrollment	2956	0.25	1.11	-1.28	6.63
LUNCH_P	2956	0.35	0.25	0.00	3.02
CITY	2956	0.06	0.23	0.00	1.00
TchrCollegiality	2956	-0.24	0.51	-2.28	1.24
#Suspensns	2956	9.20	16.00	1.00	358.00
#SecurityMsrs	2956	4.72	2.09	0.00	12.00
PrinTchgExper	2956	12.93	6.91	1.00	39.00
PrvtnProgram?	2956	0.37	0.48	0.00	1.00

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