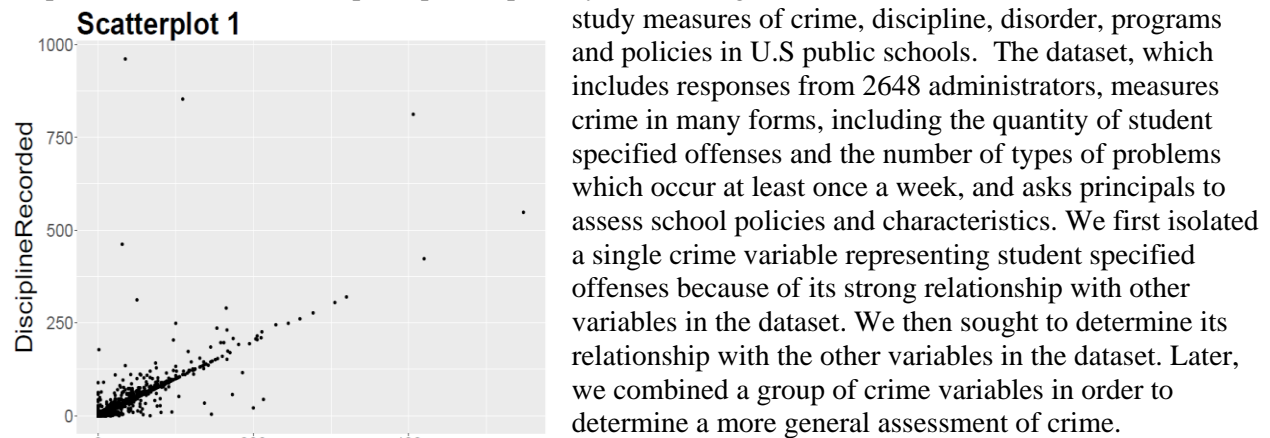


School Crimes by Ki Young, Daniel Gutstein, Yusheng Zhu, and Saravana Kumar Loganathan

The 2010 School Survey on Crime and Safety was conducted in the spring of 2010 by the U.S Department of Education on principals of primary, middle, high, and combined level schools in order to



study measures of crime, discipline, disorder, programs and policies in U.S public schools. The dataset, which includes responses from 2648 administrators, measures crime in many forms, including the quantity of student specified offenses and the number of types of problems which occur at least once a week, and asks principals to assess school policies and characteristics. We first isolated a single crime variable representing student specified offenses because of its strong relationship with other variables in the dataset. We then sought to determine its relationship with the other variables in the dataset. Later, we combined a group of crime variables in order to determine a more general assessment of crime.

There were 191 potential variables measured in the dataset which could help determine the number of student specified offenses in a school. Of these, 66 have numeric measures. Many of the questions posited to administrators are strikingly similar. For example, the questions querying how often student bullying occurs and how often sexual harassment occurs are not necessarily mutually exclusive. We therefore employed a statistical technique called Principal Component Analysis, which allowed us to condense 66 numeric type variables into the following seven groups.

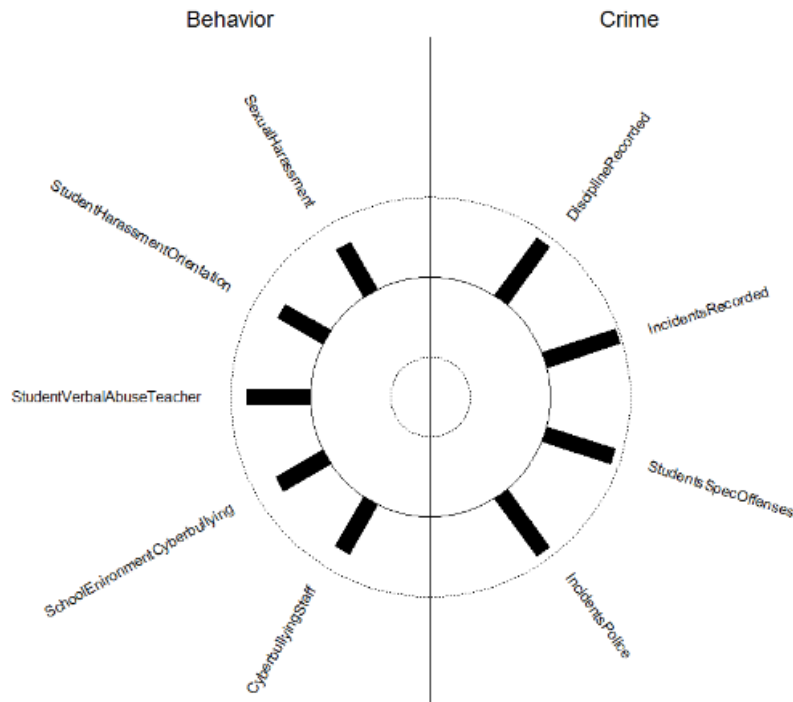
1. **Misconduct Type** contains the average of 10 variables which mostly measure the type of profane activity in which the student was involved
2. **Disciplinary Action** includes the average of 6 variables which mostly categorize an imposed sanction or the wherewithal of the school to impose punishments
3. **Limitations** contains the average of 11 variables which focus upon those constraints which may be preventing the school from implementing proper standards
4. **Amount of Crime** combines the average of 7 variables which describe the amount of actual offenses (excluding the measure of Student Specified Offenses) committed by students
5. **Student School Demographic** contains the average of three variables which describe the origin and location of both schools and students
6. **Student Parent Attitude** contains the average of six variables which describe the attitudes of parents and students regarding their commitment to education
7. **Crime Planning Enforcement** contains the average of three variables that combine elements of school preparedness, misbehavior levels, and enforcement of rules.

When we initially attempted to create a model predicting the number of student specified offenses, our resultant model captured a great deal of data but suffered from interpretability issues due to the large number deal of variables in the model. Using the groupings detailed above to predict student specified offenses, we created a condensed model that is an excellent predictor of the number of student specified offenses. Importantly, this model determined four positive contributors to the number of Student Specified Offenses from our above groupings: Amount of Crime, Misconduct Type, Disciplinary Action, and Limitations. There are two negative contributors to the number of Student Specified Offenses from our groupings: Student Parent Attitude and Crime Planning Enforcement. Additionally, we determined that those schools which have monitored or locked gates, perform student drug tests, provide classroom

telephones and emergency electronic notifications to parents, are involved in community social service, and suspend students are also likely to also experience elevated levels of Student Specified Offenses.

Since many of the crime measurements are interconnected, we also performed tests to determine if a combination of crime measures could be related to a combination of behavioral observations and a combination of parental measures. Our new Crime measure is a combination of the variables Discipline Recorded, Incidents Recorded, Students Specified Offenses, and Incidents Police. The new Parent measure is a combination of Percent Students Academic Achievement is Important, Parent Participates in Parent-Teacher Conference, Parent Participates in Subject Area Events, and Parent Volunteers at School.

HELIO PLOT



From this test we determined further evidence that there is a negative relationship between crime and parental involvement. Interestingly, it also appears from this test that although parental involvement is associated with decreasing school crime, additional involvement may be motivated by non-disciplinary related incidents. Our new Behavior measure combines Sexual Harassment, Student Harassment Orientation, Student Verbal Abuse Teacher, School Environment Cyberbullying, and Cyberbullying Staff. From this test we determined further evidence that there is a positive relationship between crime and specific nefarious behaviors. However, it also is evident from this test that student harassment with regard to staff cyberbullying, Sexual

Harassment, and Student Verbal Abuse of Teachers may often go unreported and unpunished for non-police level offenses.

CONCLUSION

Through our analysis, we determined through different techniques that parental involvement is essential to fostering student decorum. We have also noted a consistent positive relationship between crime and behavior variables. In summation, it appears evident from the data that properly planning, strict enforcement policies, and parental involvement are essential toward creating safe school environments. We are merely statisticians, and statistical assessments are almost never made with absolute certainty, but we recommend to all those interested in creating safe learning environments for our nation's children that parental involvement should always be encouraged by administrators, repercussions must be communicated and enforced, and preventive anti-bullying and harassment programs should be introduced to prevent the escalation of small-scale problems into serious student offenses.