

Antiracist Work in Mathematics Classrooms: The Case of Policing

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Uprisings against police violence have placed the institution of policing front and center in conversations about societal change. In our work with activists, we have engaged in collecting and analyzing public records data to inform community organizing for change. In this editorial we discuss how to obtain, interpret, and analyze public records on policing as a way to support educators and youth to investigate policing in their own communities. Specifically, we discuss how to embed this work in Youth Participatory Action Research as a way to respond to youth concerns about their community in a way that leads to action. Briefly, we illustrate how this occurred in one classroom in an urban school where students made meaningful connections between their analyses of local police data and their personal experiences with racially disparate policing, which led some students to become change agents in their communities. This work demonstrates the simultaneous cultivation of youth engagement with mathematics and activism.

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Over the last year, uprisings demanding justice for George Floyd, Breonna Taylor, and Ahmaud Arbery have put a focus on the need for change in policing, whether reforming, defunding, or abolishing the institution. As the world isolated in their homes in the midst of a global pandemic, people could not look away from these incidents—which lit a fire more broadly than we have seen before. These protests were spurred by activists such as Darnella Frazier, a teenager, who recorded the murder of George Floyd, posted footage, and used her voice to challenge officers. These actions further raised the question of what can be done before incidents occur and, specifically, what mathematics teachers can do to address such events in the classroom.

In response to these events, many teachers looked for antiracist resources. However, it is not clear whether lists and resources will turn into the concrete antiracist action and policy change that is needed. We often focus in mathematics classrooms on *what* we teach when *how* we teach may be even more important. Certainly, when lower track classrooms teach rote mathematics, the “how” keeps students from accessing more complex mathematical ideas, but it goes further than that as well. Many times, the mathematics we teach is meant to stay in the classroom rather than be useful to students in their current and future lives. We can teach unit rates for the costs of widgets or we can apply unit rates to something meaningful in the world. At a time when society is rethinking the role of police, this seems a critical moment to use police data to engage students in a way that will not only help them learn the mathematics but, more importantly, make plain ways in which they can use mathematics for the rest of their lives.

In this editorial, we share work we have been engaged in with community activists for the last four years focused on addressing policing practices and immigration policy at the local level. One of the key tools that we have been using is collecting public records to track policing practices and examine racial profiling incidents, examine the collaboration of prisons with Immigration and Customs Enforcement, and to monitor systems in an effort to change town, county, and state policy and hold each of these entities accountable. Here, we specifically focus on obtaining and analyzing documents around policing. First, we provide some background on state and federal laws that allow for access to public records. Then, we discuss how we used our state’s public records laws to track and examine local policing practices. We end with a discussion of researching these records with students in mathematics classrooms.

Public Records Laws

In New Jersey, the law allowing us to access records is the Open Public Records Act (OPRA), but each state has a specific public records policy. Two other examples are California’s Public Records Act and Texas’ Public Information Act. A number

of resources as well as specific state laws can be accessed through the National Freedom of Information Coalition (www.nfoic.org). At the federal level, the law is called the Freedom of Information Act (FOIA). FOIA was enacted in 1966 and has gone through many revisions, but it allows the public to access records of the executive branch. Extending from FOIA, state policies govern the type of records that can be accessed at the local, county, and state levels, but they vary extensively from state to state. For example, police use of force reports are considered public records in many states, but not in North Carolina. Internal affairs reports, key in documenting police disciplinary action, are public records in Alabama, Georgia, and Arizona, but not in California and New Jersey. Additional examples of public records are court cases, voting records, city council meeting minutes, municipal budgets, government correspondence (e.g., emails), government contracts, and administrative policies and procedures. As noted, in this article we focus on obtaining and analyzing records focused on policing given our work and recent police murders.

Analyzing Police Data With Youth

Central in our efforts to enact change in policing policy and practices is Ibram X. Kendi's notion of racist and antiracist policies. "A racist policy is any measure that produces or sustains racial inequity between racial groups" (Kendi, 2019, p. 18). What this means is that we can evaluate policies by the racial disparities that they produce or, in the case of antiracist policies, the racial equity they produce. Simply put, any policy that increases or sustains racial disparities in policing is racist. We have found this definitional space to support our work with students in examining policing. Although the tendency is to see racial disparities or police violence as an issue in urban or predominantly Black communities, from 2013–2019 police killed more people in suburban and rural communities, and this trend has been *increasing* (Sinyangwe, 2020). Racial disparities and violence in policing then are issues everywhere. Policies can be examined for their impact in terms of racial inequities, even as predominantly White communities police their boundaries to restrict the movement and actions of their urban neighbors (Boyles, 2015; Meehan & Ponder, 2002).

Although our work has been focused on monitoring municipal agencies and police departments to build a critical mass of community members pressing for change to racist policies, these same data have been used in policy and non-profit work to address the problem nationally. Specifically, the Open Policing Project at Stanford (openpolicing.stanford.edu) and Mapping Police Violence (mapping-policeviolence.org) have tracked racial disparities in traffic stops and police violence, respectively. Both websites have datasets that can be downloaded and analyzed, though your specific community may not be represented. Collecting and analyzing data can also be used to provide arguments for how to reimagine public safety.

Having students access and analyze data offers a critical lesson in exercising their rights and can lead to social justice actions, such as Gutstein (2006) discusses in detail. In the case of our work, starting in the context of local policing provided a connection to the data that heightened student motivation and engagement. Community activists that we work with assisted a number of high school students who expressed an interest in learning more about racist policing in their town and getting involved in the organized response to this problem. In a multi-year analysis of their small town's municipal budget, a group of students and adult activists discovered that a disproportionate amount of funds were allocated to public safety, four times more than the community services budget. The analysis also revealed that an outsized share of the public safety budget was apportioned for the police department. In the interest of increasing awareness of this data in their community, the students created bar and pie charts highlighting the magnitude of the budget disparities and displayed poster-size models of these visual representations during local Black Lives Matter and Reimagining Policing protests. This analysis informed community arguments around reallocating funding away from the police in order to provide more community services, aligning with broader calls to defund or abolish the police.

However, in order to support students in making data-based arguments, they need to be able to access government records. Specifically, we focus on supporting teachers and students in accessing police data that is not already available via a website or an existing report. First, we discuss how to access public records as well as some issues in analyzing and framing the data.

Obtaining Police Records

One of the biggest barriers to accessing data is sometimes figuring out the right language to use. Public record requests must ask for government documents, not general information. We have had support from the American Civil Liberties Union–New Jersey (ACLU–NJ) and specifically OPRA lawyer C.J. Griffin of Pashman Stein Walder Hayden, who serves on the ACLU–NJ board. Community organizations working on similar issues or your own state ACLU chapter might be a support if you have difficulty accessing public data. A useful strategy is to start small, as you can always request more data. Around policing, we have focused our energy on tracking traffic stops and use of force. Here are two requests we have submitted:

Pursuant to OPRA and the common law right of access, I seek all Use of Force Reports from January 1, 2016 to October 23, 2017.

Pursuant to OPRA and the common law right of access, I seek the monthly Traffic Stop Race/Gender Report for the months of January 2016 - October 2017 to include the gender and race/ethnicity of persons stopped, persons ticketed, and persons given warnings.

It may be necessary to make multiple requests before you get the data you want, but these laws are in place for citizens and reporters to investigate government institutions. However, if you ask for too much data, government agencies may start to say they cannot meet the request or charge fees. They are allowed to charge fees for work time with large requests and for copying physical materials and DVDs (in the case of video footage). However, if you request smaller amounts multiple times, it is possible to avoid charges, and if you ask for electronic copies, there are no fees for the physical materials. Therefore, appending “You can send all documents in PDF form to [insert your email address]” at the end of any request will result in quicker responses and lower to no fees.

Depending on the public records law governing your institutions, they may not aggregate data by race or gender. Therefore, obtaining data on individual traffic stops for a month and going individually through them could be necessary to examine disparities. This is also something to urge policy change with the state attorneys general so all state and local agencies aggregate data to look at disparities based on race and gender.

Requesting Records for Individual Incidents

Another reason to request information about individual incidents is if there was a specific interaction with the police that you want more information on. For example, in contrast to traffic stops, which can be initiated by license plate readers, instances of use of force are based on police decisions alone. Such instances also raise questions of training and implementation of de-escalation practices, and collecting a year’s worth of data can spur investigation of suspicious individual incidents. In these cases, OPRA requests specific to an incident rather than overview data can be helpful. The following two requests illustrate this type of incident specificity.

Pursuant to the OPRA, I seek dash camera footage and body camera footage of the use of force incident that occurred on [Insert Date] involving [Insert Name] and officers [Insert Officer Names]. Please note that the Supreme Court said in *North Jersey Media Group v Township of Lyndhurst* that dash and body cam videos of the use of force should be available to the public under the common law.

Pursuant to the OPRA and the common law right of access, I seek the arrest report, pedestrian stop report, traffic stop report, police log, use of force reports, and any other reports the Police Department has on file for the [Insert Date] incident involving [Insert Name].

Video footage and arrest reports can raise serious inconsistencies about the story police tell to the public (Morrison, 2017). Therefore, they can serve as a check for the stories police tell about incidents or reveal blatant lies in reports (for additional request examples, see Hunsdon & Battey, n.d.).

Data Interpretations and Limitations

In addition to policy limiting available data, traffic stops may be initiated by license plate readers, so police departments can say they are not responsible for racial disparities in traffic stops. However, tickets are generated by the police themselves. The benefit of looking at traffic stops is that they are not community initiated and make it more difficult for police departments and municipalities to shift blame to the community.

A common practice in many communities is to have elected officials and police departments blame racism in the community for calling the police (e.g., Amy Cooper & the Central Park Birdwatching Incident; see Sacchetti et al., 2020). Although this is a real issue, it is also a way to deflect responsibility from the police. However, even these incidents can raise problems in the ways that dispatchers handle calls in the community. In New Jersey, a law was recently enacted to consider a racially based false 911 call as a bias crime (State of New Jersey, 2020). Washington and New York have similar laws, and California and Michigan are considering them. Monitoring the number and types of community calls as well as how dispatchers and the police respond to such calls can be an important effort. For example, we uncovered an incident where a homeowner called 911 because a Black man was on a cell phone near a parked car in front of their house. The police department responded by sending not one, not two, but four police cars. We collected the dispatch call and the multiple incident reports for each police officer that arrived on the scene. Therefore, even community racism can show how dispatchers and police departments respond to incidents where no crime is under way.

It is also important to note that data obtained from police records is always incomplete. Race data classification is usually attributed from the visual observation by the police officer. Therefore, the dependability of race classification data is questionable. The racial lens of police can diminish the appearance of racial disparities by underreporting incidents with Black and Brown individuals. In addition to racial information, police reports may be missing other data, like why someone was arrested or the types of force used. Even dashcam videos have limitations, as they may not show the incident because of the direction of the car. We have also had occasions when police sit down with community members and show partial or edited video. It is possible that video is edited even when obtaining it through public records. However, even with these limitations, it has not compromised the data we have obtained, across multiple municipalities and the county (or national datasets mentioned earlier), from revealing significant racial disparities in policing.

Analyzing the Data for Action

Both of the requests above dealing with traffic stops and use of force reports were fulfilled. Although sophisticated analysis is possible, dividing the number of traffic stops by the local population gives you a comparable racial rate (see Figure 1 for one police department's statistics). Usually this is then multiplied by 1,000 or 100,000 to give the rate "per 1,000 persons." In terms of mathematics lessons, this can be used to learn about rates as well as learn about demographics of the students' community versus neighboring communities and to encourage them to consider policies that segregate within or across communities. Population data can be accessed through the U.S. Census Bureau or American Community Survey (www.census.gov or censusreporter.org).

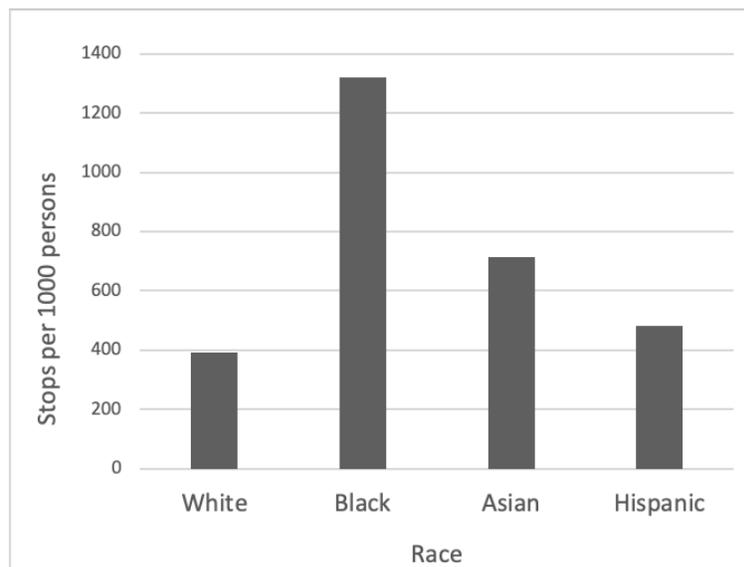


Figure 1. Traffic Stop Rate by Race

Figure 1 shows that Black drivers were stopped at over 3.5 times the rate by population of White drivers in this community over a two-year period. The police department in this example pushed back to say that the town population was not a fair representation because there was a busy road going through town. This argument would require that the neighboring communities had a higher percentage of Black drivers in their populations. However, neither neighboring town was predominantly Black. For educational purposes, students can explore the implications of using different population statistics in the analysis. Clearly, the traffic stop rate for Black drivers is over three times higher than for White drivers.

We mentioned earlier that just looking at stops can allow police departments to push back due to license plate readers. This raised the need in the community to look at the citation data in comparison to the earlier stop data to speak to such concerns (see Figure 2).

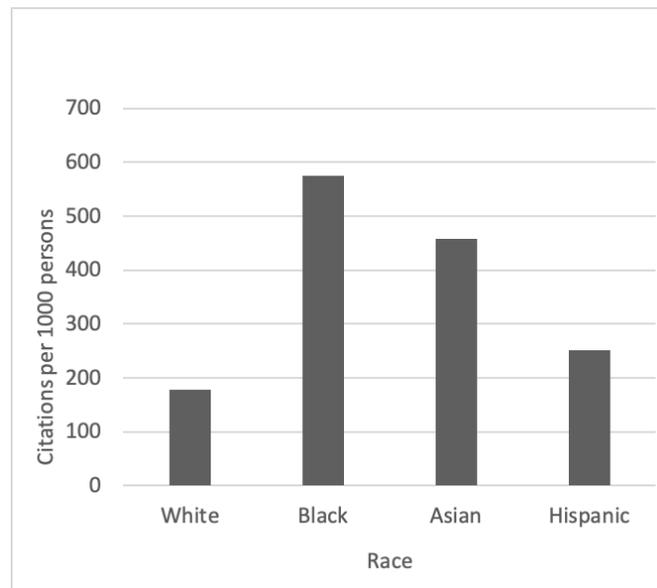


Figure 2. Traffic Citation Rate by Race

Once again, the data show Black drivers being cited at over three times the rate of White drivers. Additionally, Asian drivers were cited about 2.5 times more than White drivers. Therefore, the patterns shift somewhat from traffic stops, because the citation rate for White drivers is lower in comparison to other racial/ethnic groups. However, the disparities remain from the earlier analysis. Analyzing this data with students can help them realize disparities in policing for different communities. It also places calculating unit rates within an everyday context rather than those from textbooks. Therefore, traffic stop data provide an important context to develop mathematics skills while doing it in a context that raises issues of social justice.

Another consideration for data to analyze is police use of force. Traffic stops and citations can be initiated by license plate readers and radar outside the decision-making purview of police officers. However, police officers decide whom to use force on, not community members calling the police or automatic license plate readers. The decision to use force is made by individual or groups of officers. When looking at the same community that we performed the traffic stop analysis on for cases of police use of force, we found that 64% of use of force incidents were with people of color and 58% of them were specifically with Black individuals despite the

community being 64% White and 6% Black. Police departments and municipalities have less room for argument on these incidents except to try to consider them individual cases. However, similar results across months and years can speak volumes about patterns of use of force. Mental health crises can play a role in use of force data, which can raise the need to reconceptualize public safety and to consider whether police are sufficiently trained and should be the ones handling mental health incidents (Westervelt, 2020).

These data and analyses are drawn from public records in a suburban, predominantly White community. It is a small town that borders a city with a major university, and it also, according to our data and analysis, is one that polices Black drivers heavily as they live in and pass through the community. As Sam Sinyangwe (2020) has stated, racial disparities in policing are increasingly becoming a suburban issue as the communities become more diverse and police the borders of their urban neighbors. This means that although recent coverage highlights killings in urban communities, this is work predominantly White communities also need to take on, as their police fine, incarcerate, and kill Black people that pass through.

Antiracism in Urban Mathematics Classrooms

Mathematics activities involving analysis of policing data can also be implemented in the context of Youth Participatory Action Research (YPAR), a civic education framework that engages youth in research projects that tackle complex and challenging social issues (Mirra et al., 2015). Under adult guidance and research training, YPAR student groups identify an issue of concern that impacts their lives and/or the lives of others in their school or larger community and conduct research that seeks solutions to the problem. YPAR research culminates in a student presentation of their findings, proposed solutions, and action (Cammarota & Fine, 2008).

With social justice and student empowerment as central tenets, YPAR is an effective means of empowering historically marginalized student voices (Zaal & Terry, 2013). Schools across the country have implemented YPAR projects that engage youth in knowledge production on critical social issues such as school violence, health promotion, experiences of new immigrants, restorative justice, and educational inequalities (Rubin et al., 2016; Zaal & Terry, 2013). Rooted in local contexts and driven by student inquiry, YPAR projects are not guided by scripted lesson plans and curriculum guides. Rather, the research process and lesson plans unfold in an organic manner, facilitated by skilled adults who assist students in using tools and resources for data collection, analysis, and reporting. Mathematics settings have employed YPAR projects for examinations of issues including the prison industrial complex (Terry, 2011), racial and class-based educational

inequalities (Yang, 2009), racism in housing data (Gutstein, 2003), and school food injustice (Raygoza, 2016). These real-world applications of mathematics understanding in the service of social justice placed marginalized youth in urban spaces at the center of data gathering, analysis, and reporting thereby reinforcing deeper mathematical learning, cultivating increased awareness of the utility of quantitative data, and creating opportunities for students to contribute to important reform discussions in their schools and communities (Gutstein, 2003; Raygoza, 2016; Terry, 2011; Yang, 2009).

Whether in the context of a YPAR project or in a mathematics lesson that simply analyzes data, examining policing practices through data analysis allows students to examine policies for racist practices. Analyzing racial disparities in policing data can prove particularly engaging for youth in urban school settings who develop an understanding of some of the statistics behind the racial injustices that they may see and hear about from people directly impacted by biased policing in their homes and communities. Empowered by their research and related findings on racial disparities in policing, students can become civic actors in discussions of reimagining public safety in their own neighborhoods. Given the existence of racially disparate policing across different community settings—urban, suburban, and rural—the practice of social justice mathematics education has relevance for students in many K–12 school environments.

There are a number of ways for students to mathematically analyze police data. It can be helpful to start with a question; for example, “What do we want to know about traffic stops by police in our community?” At the upper elementary level, issues of fairness are of concern to many students. Students may want to know how traffic stops differ by race, and they can look at total counts of traffic stop data for one month and compute percentages to compare stops with Black or White drivers with all stops. It is in comparing the data using counts and percentages for different racial groups that issues of fairness are raised for discussion for students. Younger learners can also compare the percentage of stops and population using charts and graphs.

At the middle school level, students can extend this by examining proportions, dividing the stop percentages by the percentage of the population. Analyzing the data this way moves students into considering proportions (stops to population) and comparing proportional relationships across races. Additionally, as the rates of stops or citations are compared to the population, students are computing unit rates (per person or 1,000 persons), which they can represent graphically as well. Lastly, students can consider different ways to represent population and the implications for how arguments are constructed. For example, what happens if they use county data or include the populations from neighboring communities that may drive through their community? Exploring the different ways to

represent populations can engage students in considering different methods of calculating results, the arguments the different considerations support, and opportunities to critique how data is organized and presented in the media.

At the high school level, students can extend analyses of proportions and unit rates to develop models for examining trends across years of police data. Driven by a question of whether traffic stops are increasing or decreasing inequities, they could gather multiple years of traffic stop data and develop an equation that shows the relationship of stops over time for each racial group. This traffic stop data can also be represented graphically, and students can interpret each other's graphs. Furthermore, students can evaluate police reports or watchdog reports to interpret the data and various graphical representations used. As we have shown, there are ways to engage students at all levels in K–12 education in critically analyzing policing.

YPAR in one Mathematics Classroom

We have found that it is important to start with the questions asked by students and to examine decisions about how to analyze and represent data. Based on our work collecting and analyzing police records, a college student from a local community activist group worked with an urban high school class to share policing data for that community. During the initial discussion, a number of questions were raised about the data and possible interpretations, which prompted the high school students to further examine the policing data. Students asked about the citation rates by police officer to determine if some officers had higher than average rates of citing Black, Latinx, and Asian drivers. One student wondered if Black and Latinx teens walking, riding their bikes, or hanging out in town were more likely than their White counterparts to be stopped and questioned by the police. Students also made connections to police interactions with young people. Specifically, one high school student shared an experience of being harassed in an interaction with the police. The discussion resulted in the students deciding that they wanted to examine the demographic data on youth involved in suspicious person incidents in the community. Learning about one peer's experiences and the strategies for gathering the data prompted using mathematics to examine concerns about policing in the students' community.

In order to investigate the suspicious person incidents in the community, the high school students had to learn about police data and how to request, organize, and analyze it. However, students first needed to decide on a research question that could be answered with the data available. Students had to consider various issues like what data to use, how much data to collect, and over what period of time to collect the data. Accessing and analyzing the police records presented students with the opportunity to review raw data and determine ways to reduce it to interpretable

conclusions. When the data came in, they decided how to organize it in a format to do analysis of counts, rates, and proportions. They decided to do this in Google Sheets, which allowed the students to work collaboratively. Students explored the meaning of simply analyzing counts without consideration of the population of the surrounding community. This raised the need for proportions and relating the number of incidents to the population to draw a comparison across various racial groups.

Across this work, students considered additional variables (e.g., location of stop, time of day), disaggregated analyses, and used and applied measures of center and spread to determine suitable comparison groups and techniques to know when their results diverge from the norm. Still, any analysis leaves a number of interpretations of racial disparities. However, in centering conversation on Kendi's (2019) definition, the existence of racial disparities themselves speaks to racist policy. The issue then becomes which policy and how it is producing such disparities. This also shifts the conversation away from blaming certain groups to looking for structural reasons for racial inequities.

As students engage in analyzing police data, other questions are sure to arise. In this case, students became interested in the role of police in the schools. They were generally aware of the popular term "school-to-prison pipeline," which refers to the pathway from school suspensions and punitive disciplinary practices to criminalization and incarceration in the juvenile justice system that disproportionately impacts Black, Latinx, and Indigenous students of color (Morris, 2012). This phenomenon is closely tied to the use of school resource officers (SROs) "that either are or act like police officers" (Tyler & Trinkner, 2017, p. 163). Although the proliferation of SROs has been widespread across the nation's schools, this crime-control approach to discipline is more common in schools that predominantly serve Black and Latinx students (Tyler & Trinkner, 2017).

Although a nearby urban school with a majority Black and Latinx student population employed an SRO, the students that we worked with were in a school district that did not employ an SRO. However, their general concern about police in schools resulted in students commenting that they regularly see a youth police officer in their own school, even though they are not designated as an SRO. The presence of the officer in their school raised several questions about the presence of the youth police officer, as he had regular access to the school. Is the youth police officer used for security at all school events? Is an officer/s present for some sporting competitions more or less than others? How much of the school district's budget is allotted for law enforcement? Are there racial disparities in the number of discipline incidents that require police involvement? Therefore, the YPAR work with these youth raised more questions about their community and additional research to pursue. Pursuing answers to these and related questions involves engaging with school officials to ensure that they will provide access to the data or requesting public records through OPRA if

they are unwilling to share it. This activity can also highlight the importance of youth voices in determining what they need to feel safe in their buildings.

Ultimately, YPAR is about producing knowledge and informed action. As youth begin to identify racial inequities, which point to racist policies—those that are producing racial disparities—they can shift to advocating for antiracist policies—those that produce racial equity. In the case of this high school, the action that resulted came in the form of speaking at board of education and city council meetings, organizing direct actions, and partnering with community organizations. The public officials and community groups stated that they benefitted from the analysis that students conducted. Ultimately, the youth police officer was limited to having access to the school for specific incidents through alliances students built with parents and members of the school board. Though there are clear benefits to developing mathematical understanding through analyzing public records, we believe that the more important contribution is the action in the service of creating a more just society that can result.

Concluding Remarks

Doing YPAR based on requests for public data can be complex and tedious but equally rewarding to students and necessary work in marginalized communities. Not only is it detailed work, but it is also work that goes against the socialization of many community members who have been conditioned to trust the police. Having conversations with those who do not bring systemic lenses to understand policing often lead to discussions focusing on individual police officers (e.g., “bad apples”). A historical analysis of the police reveals just how policing has been an arm of the state to control Black and Brown people in an effort to keep White people feeling safe (Muhammad, 2010). Challenging White institutional spaces and anti-Blackness (Martin, 2019) is long-term discouraging work. Police departments will sometimes note limitations of their own data, questioning the validity of it, which raises the question, “Why not collect better data?” City councils often frame issues as “good” and “bad” cops rather than looking at issues systemically (Stanley, 2015).

In urban centers, data show widespread use of force in policing (Mapping Police Violence, n.d.). Engaging youth in these communities, who are themselves harassed or subjects of force by police, can make them agents of change. This work needs to be done by concerned residents forming multi-generational coalitions that nurture and encourage new generations of activists. Young people in predominantly Black and Brown communities who have accumulated, lived experiences with over-policing and racial profiling can enrich and deepen their understanding of longstanding racial discrimination by engaging policing data analyses. In the process, youth researchers are exposed to ways they can analyze, interpret, and represent data to inform direct actions around policing in their communities. Student perspectives are

then at the center of community education on policing, leading to activism and calls for change.

By making the mathematics relevant to students' lived experiences and analyzing their own community's data, students are encouraged to continue taking mathematics and using it for their own purposes. The goal is not to make all students mathematicians, but it is to give them access to consciously use mathematics in their lives as a form of socially transformative participation. Data alone cannot solve our national problem around police violence, but it can show where specific issues lie within police data, raise the need for specific practices or policy changes, and bring to light blatant racial profiling incidents to build community support for change. As students uncover these blatant illegal and unethical policies and practices and the mathematics underlying their cases, they can be empowered for a lifetime of engaged mathematics activism. In particular, supporting them in accessing public records will make them better equipped to find problems, present their case using mathematics, counter alternative arguments, and enact change. Pushing for that change through analysis shared with the community and done in individual classrooms is antiracist work. In turn, this empowers students to engage in action to push for antiracist policies and practices that address police violence in their communities.

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